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*192 lb.-ft @ 2100-5000 rpm (SAE net). Civic Si Coupe and Sedan shown. ©2017 American Honda Motor Co., Inc.

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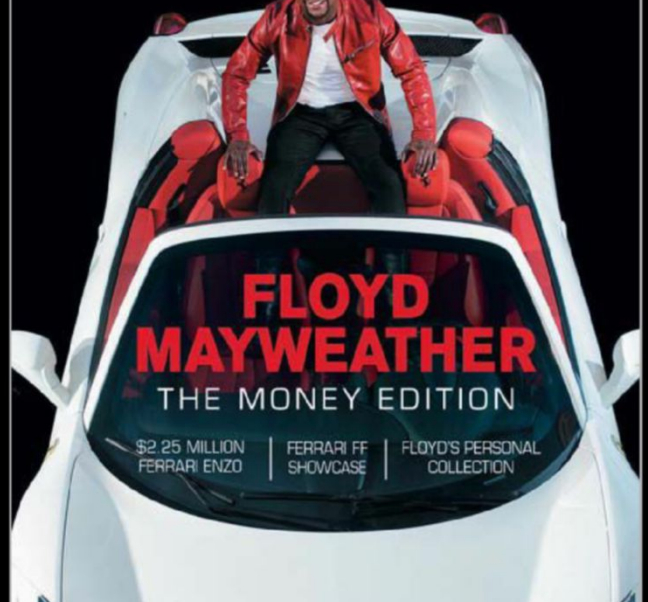
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CAR OF THE YEAR®
2017 CHEVROLET BOLT EV

To select the vehicle it deems worthy of such a high distinction, *Motor Trend* magazine puts vehicles through their paces to find the one that best represents exceptional value, industry superiority and most significant development in engineering and design excellence. Chevrolet came out on top. All cars are run through the complete set of *Motor Trend* tests – acceleration, braking, figure eight – with focus on such qualities as handling, ride quality and refinement. Standard car tests include skid-pad ratings and quarter-mile times, with the track run conducted by Sports Car Club of America-licensed testers under normal test-drive conditions.



2017
J.D. POWER
VEHICLE DEPENDABILITY STUDY
2014 CHEVROLET SONIC, CAMARO, TAHOE AND SILVERADO HD

Dependability is essential in any vehicle, and Chevrolet is the only brand to receive J.D. Power Dependability awards for cars, trucks and SUVs two years in a row.² This year, it received “Most Dependable Small Car, Midsize Sporty Car, Large SUV and Large Heavy Duty Pickup.” To determine its final list, J.D. Power examined issues reported over the past 12 months of ownership by original owners of 3-year-old vehicles. The study covers 177 specific symptoms grouped into eight major vehicle categories that include engine, transmission and the driving experience to interior ergonomics and audio, communication, navigation and controls.



2016
EDMUNDS.COM
MOST POPULAR ON EDMUNDS.COM
& EDMUNDS TOP RATED
2016 CHEVROLET IMPALA, TRAVERSE, CORVETTE, CAMARO ZL1 AND VOLT

Chevrolet has six nameplates across six different segments that have been recognized by Edmunds.com in 2016. These designations include 2016 Most Popular on Edmunds.com and Top Rated. A Most Popular on Edmunds.com designation is given to the vehicles that had the most shopper consideration on Edmunds.com from January 1, 2015, through November 16, 2015. A Top Rated designation is bestowed upon the vehicles given an “A” rating by Edmunds.com based on its standardized road-test loop and test-track evaluation.



2017 IIHS
TOP SAFETY PICK
2017 CHEVROLET MALIBU AND VOLT

The Chevrolet Malibu earned a Top Safety Pick when equipped with the available Driver Confidence Package. The Chevrolet Volt received a Top Safety Pick+ when equipped with the available Driver Confidence II Package. To qualify for a 2017 Top Safety Pick, a vehicle must earn good ratings in five crashworthiness tests as well as an advanced or superior rating for front crash prevention. To qualify for a 2017 Top Safety Pick+, a vehicle must meet the requirements for a Top Safety Pick, plus have an acceptable or good headlamp rating.



2017
CAR AND DRIVER
10BEST
2017 CHEVROLET BOLT EV, CAMARO AND CORVETTE GRAND SPORT

Each year, dozens of new cars are put through thousands of miles of cumulative evaluation to determine the annual list of the very best automobiles for sale in America. And Chevrolet has risen to the top again and again across multiple segments. Winning isn't easy. In order to take home a trophy, a vehicle must offer good value, excel at its given mission and, critically, deliver a pleasurable driving experience. That's something that's built into every vehicle Chevrolet makes.



2017
KELLEY BLUE BOOK
BEST RESALE VALUE
2017 CHEVROLET BOLT EV, COLORADO, SILVERADO HD AND SUBURBAN

Resale value is important to any vehicle, and Chevy tops the list. The 2017 Kelley Blue Book Best Resale Value Awards are based on best retained value over the first five years of new vehicle ownership.³ Resale value projections take into account sales data, market conditions for each vehicle, competition within vehicle segments, expectations of the future economy and the combined experience of Kelley Blue Book's team of analysts.

¹ Based on recognized industry awards for 2014-2016 year-end totals. ² The Chevrolet Sonic, Chevrolet Tahoe, Chevrolet Silverado HD and Chevrolet Camaro received the highest numerical scores in their respective segments in the J.D. Power 2017 U.S. Vehicle Dependability Study, based on responses from 33,560 U.S. original owners of 2014 model-year vehicles after three years of ownership about problems experienced in the past 12 months, surveyed in October-December 2016. Your experiences may vary. Visit jdpower.com. ³ Vehicle's projected resale value is specific to the 2017 model year. For more information, visit Kelley Blue Book's KBB.com. Kelley Blue Book is a registered trademark of Kelley Blue Book Co., Inc.

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The all-new Equinox has been engineered to make every drive a more efficient one. Going above and beyond, the new Equinox offers more to help keep you confident on the road. From available Forward Collision Alert and Side Blind Zone Alert, which help warn you of potential hazards, to available Low Speed Forward Automatic Braking and Lane Keep Assist that can help you take action when needed. With these advanced safety technologies, along with a trio of turbo engines and a perfectly balanced design, the all-new Equinox is everything you need, to do everything you want.

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ACTIVE SAFETY TECHNOLOGIES

Low Speed Forward Automatic Braking

This available system automatically engages the brakes to potentially help reduce the severity of an imminent front-end collision with a detected vehicle. It may even help avoid collisions at very low speeds.

Lane Keep Assist

Lane Keep Assist can help to keep you from drifting into the next lane. At speeds above 37 mph, this available camera-based system monitors road lines and will gently turn the steering wheel if the vehicle begins changing lanes when you are not actively steering and your turn signal is not activated. The feature is triggered when it does not receive active input from the driver and is disabled when you provide active input, such as purposely changing lanes or using your turn signal.

IntelliBeam Headlamps

Available IntelliBeam® headlamps intuitively adjust between low and high beams when oncoming headlamps are sensed or when taillamps are detected in front of you. This can help to illuminate the road ahead and improve visibility – especially in dark conditions. It also helps spare oncoming drivers the glare of your high beams on dark roads.





Equinox has your back, front and sides with available camera-, sensor- and radar-based safety technologies on all sides.

1. Standard Rear Vision Camera
2. Rear Park Assist
3. Rear Cross Traffic Alert
4. Lane Change Alert
5. Side Blind Zone Alert
6. Lane Keep Assist with Lane Departure Warning
7. Forward Collision Alert
8. Low Speed Forward Automatic Braking
9. IntelliBeam Headlamps

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SAFETY ALERT SEAT

This available feature uses directional vibration pulses from the seat cushion instead of audible alerts to help indicate the direction of potential collision threats. This patented warning approach is tied into select available onboard hazard avoidance systems.

Get a bird's-eye view.

SURROUND VISION

Using four strategically placed cameras, available Surround Vision gives you a bird's-eye view of your Equinox on an available 8-inch diagonal color touch-screen. All camera viewpoints simultaneously merge to transmit a clear side-by-side digital image to the display screen to help provide you with more information, allowing you to see more of the areas behind and around you. Especially when parallel parking, it helps navigate tight spaces with ease.

Safety features are no substitute for the driver's responsibility to operate the vehicle in a safe manner. The driver should remain attentive to traffic, surroundings and road conditions at all times. Read the vehicle Owner's Manual for more important feature limitations and information.

2018 EQUINOX

VS. 2017 FORD ESCAPE & 2017 HONDA CR-V

Available Safety Feature	'18 Equinox	'17 Escape	'17 CR-V
Surround Vision	YES	NO	NO
Safety Alert Seat	YES	NO	NO
Lane Change Alert	YES	NO	NO
Low Speed Forward Automatic Braking	YES	NO	YES
Rear Park Assist	YES	YES	NO

CHEVROLET



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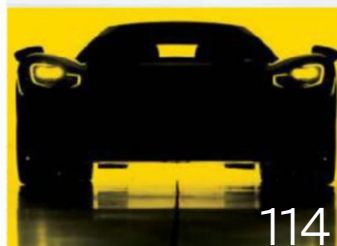
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MOTORTREND

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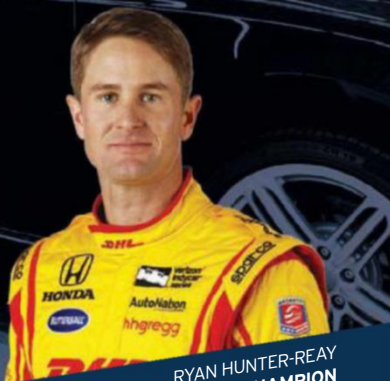
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The Lohdown

What's On Demand This Month?

TURNING OVER A NEW LEAF

THE WORLD'S BEST-SELLING ELECTRIC CAR SHOULD BE A SHOCKER



I took a spin in our 2017 Car of the Year the other day, and I marveled again at the current state of automotive engineering. I know, I know: Gas prices are low, and car shoppers are flocking to SUVs—while drooling over tire-roasting Raptors and Demons born of Hellcats. If electric vehicles register at all, it's only with hippie tree huggers or savvy megacity commuters, laser-focused on taking advantage of the HOV lane, right?

You're still reading, so I'll wager that you're in a third, no less cultish sect of vehicular enthusiasts that likes to stay abreast of the latest technology, no matter the origin. If so, drive a Chevrolet Bolt EV if you get the chance. The future is already here with that car, in a package that is surprisingly affordable, anxiety free, and, yes, more than a little fun to drive.

With any luck, Bolt and others in the EV space will be joined by some new and familiar game changers very soon. We've done a ton of reporting on the Model 3—Tesla's slick and affordable EV sedan for the masses—but don't sleep on the next-generation Nissan Leaf.

In January of 2017, Nissan sold its 250,000th Leaf—making it not only America's best-selling electric car but also numero uno in the world. Surprised? That is understandable. The Leaf has been an overnight success, some six years in the making. When it was released in 2011, it had an EPA rating of 99 mpg-e and an estimated range of 73 miles (on the current cycle). That was competitive at the time, but within a couple of years Tesla had outclassed the entire field with its top-dollar, 265-mile max range Model S.

Nissan gradually upped the distance to empty, topping out at 84 miles in 2013, which was still very modest in comparison to Tesla's poster child. But modesty, both in terms of range and price, is a virtue consumers apparently loved. Leaf sales kept chugging along, and the Leaf became the world's best-selling EV in 2013 and 2014.

My good friend Rob was one such earlyish adopter. He's an ex-cop, pathologically concerned with safety, situational awareness, and saving money. He leased a loaded 2013 Leaf SL for schlepping his three boys around Cleveland's suburbs. "It was good," he said. "It fit all three kids and their child seats. I leased because, at the time, I was concerned about the new technology."

Despite range-shortened winter months and a minor sensor issue, three Leaf-y years turned Rob into a bona fide EV convert. When the lease expired, he and his wife, Beri, turned in the Leaf and their long-distance family hauler (a Volvo XC90) and are now a two-Tesla family—a new Model S 60 for her and a used Model S 85 for him.

When I texted Rob that a new Leaf is budding,

he was excited. But would he go back? "I did like it, but the competition is stiff with Bolt and the upcoming Model 3," he thumbed. "It's tough because you have the Bolt with 238-mile range. I don't need all that, but it's nice to have."

Indeed, the bar is high for the next-generation Leaf. Tesla's Model 3 and the will-they-or-won't-they saga to deliver 500,000 vehicles in 2018 has dominated recent EV news, save for the \$37,495 bolt of impressive engineering delivered by Chevy. For the new Leaf to steal the spotlight, it's going to have to have comparable range, much sexier styling than the first generation, a bleeding-edge technology story, or a price that beats 'em all.

That's a tall order, but don't count Nissan out. The automaker has a history of big bets paying off; just look at the original 240Z, the trucky Xterra, Carlos Ghosn's heroic turnaround, the supercar-killing GT-R (our 2009 Car of the Year), and the quietly best-selling Leaf.

A new Leaf is set to drop this fall, and when it does, it should be a shocker. ■



- JUNE 23** **LIVE!** Goodwood Festival Of Speed (Goodwood)
LIVE! Pirelli World Challenge – GTS (Road America)
 Motorsport Mundial
- JUNE 24** **LIVE!** Blancpain GT Series Endurance Cup (Paul Ricard)
LIVE! Goodwood Festival of Speed (Goodwood)
LIVE! Pirelli World Challenge – GT (Road America)
LIVE! Pirelli World Challenge – GTS (Road America)
- JUNE 25** **LIVE!** Goodwood Festival of Speed (Goodwood)
- JUNE 26** **IGNITION** Ep. 177
- JUNE 30** **LIVE!** 24H Series (Imola)
 FIM Motocross World Championship, MXGP of Italy (Maggiore)
 Motorsport Mundial
- JULY 1** **LIVE!** DTM Championship (Norisring)
- JULY 2** **LIVE!** FIA Formula 3 Championship (Norisring)
LIVE! Lamborghini Super Trofeo North America (Watkins Glen)
- JULY 3** **British Touring Cars Championship** (Croft)
 Mobil 1 The Grid
- JULY 4** **DIRT EVERY DAY** Ep. 66
- JULY 5** **GP Confidential**
 GT3 Le Mans Cup (Le Mans)
 King of Europe Drift
- JULY 6** **HOT ROD GARAGE** Ep. 54
- JULY 7** **LIVE!** 24H Proto Series (Misano)
LIVE! Virgin Australia Supercars, Townsville 400
 FIM Motocross World Championship, MXGP of Portugal (Aguada)
 Motorsport Mundial
 ROADKILL Ep. 67
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- JULY 9** **LIVE!** FIM Cev Repsol Championship (Circuit De Valencia)
- JULY 10** **IGNITION** Ep. 178
- JULY 11** **THE HOUSE OF MUSCLE** Ep. 9
- JULY 13** **FIM Enduro World Championship** (Hungary)
- JULY 14** **Motorsport Mundial**
- JULY 17** **British Rallycross Championship** (Pembrey)
 European Truck Championship (Nurburgring)
 GP Confidential
 Mobil 1 The Grid
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INTAKE P18
THIS MONTH'S HOT METAL

WE SAY P28
WORDS FROM OUR EDITORS

THEY SAY P32 INTERVIEW
ROLAND KRUEGER President, Infiniti Motor Co.

Chevrolet FNR-X concept

➤ GM calls its latest creation, the Chevrolet FNR-X concept, which made its world debut at the 2017 Shanghai auto show, an all-purpose sports concept vehicle. Behind the fancy descriptor is a four-seat plug-in hybrid crossover bearing styling with plenty of attitude.

Although decidedly a concept, the FNR-X is far

closer to being a production-ready vehicle than GM's last Shanghai concept, the futuristic Chevrolet FNR (Find New Roads) concept vehicle, which was shown in 2015. Both were created by GM's joint venture with the Pan Asia Technical Automotive Center.

"The Chevrolet FNR is one of Chevrolet's most forward-thinking concept cars, truly exemplifying the brand's passion for innovation and ingenuity," Alan Batey, GM executive vice

president, said of the original, adding that the FNR-X will build on that.

Up front, the concept features dynamic digital LED headlights and a gold Bow Tie that is centered between the hoodline and wide bumper with active grille shutters.

Its rear-hinged rear doors can be controlled remotely. It also has high-tech cameras instead of traditional side mirrors. Around back, rear spoilers and side skirts move up and down depending on which driving mode is used.

Inside, the FNR-X gets high-tech fabrics, a sport steering wheel, and split-folding second-row seats for plenty of cargo space.

Chevrolet says the plug-in hybrid EV can switch between

its engine and electric motor (no details were provided). There are two driving modes, V (Versatility) and S (Sport), which adjust the FNR-X's adaptive suspension.

It also offers intelligent adaptive control systems. Chevy says it has switchable wheel blades that adjust automatically during high speeds to reduce wind drag.

The FNR-X is only in its concept stage, but we think Chevrolet is on the right track. A production model could arrive in the U.S. soon.



Words Ed Tahaney



**BEST OF THE
SHANGHAI
AUTO SHOW**

08.17 TREND

YOUR SAY P34
READERS TALK BACK



The plug-in hybrid crossover bears styling with plenty of attitude.

Intake

SNEAK PEEK The Jeep Yuntu isn't coming to America, but you can look for many of its design cues on the next Grand Cherokee and future Jeeps worldwide.



Jeep Yuntu concept



The seven-seat plug-in hybrid Jeep Yuntu concept was crafted for Chinese tastes, and before you ask, it's not for the U.S. Well, at least not for now.

"SUVs are the fastest-growing segment in China, and the Jeep Yuntu Concept showcases the potential for the Jeep brand to keep expanding in the country," FCA said in a statement.

Yuntu translates roughly into "cloud map" in English.

The concept Jeep sports sharp, clean lines, slim LED headlights and taillights, a chrome grille, golden bronze flourishes, and suicide doors.

Inside, the Jeep Yuntu offers up plenty of blonde wood trim on the dash, steering wheel, and center console. There's a large color touchscreen video display that seems to stretch from the driver's side all the way to the passenger's glove box. It also sports a funky gearshift knob, captain's chairs with built-in

monitors, and more golden trim highlights all around.

The Yuntu concept was designed with families in mind, and the independent seats have the ability to lie down and flip, according to Jeep's Chinese website.

It also features gesture controls and offers facial recognition software to identify the owner and passengers for security. No key is required to operate the Yuntu, thanks to its biometric technology, the site says.

Jeep's Yuntu also comes

with its own exploratory drone, which scans the road ahead to help plan off-road driving routes.

The Yuntu's batteries have a range of approximately 40 miles and can be charged wirelessly, according to the automaker. No other details regarding its hybrid system were provided.

For the concept, Jeep partnered with Guangzhou Automotive Group (GAC), which currently produces Jeep Cherokees and Renegades for the Chinese market. **Ed Tahaney**



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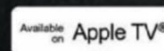
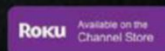
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Intake



BABY GT4 As the C-Class became a baby S-Class, the A-Class becomes a baby AMG GT sedan.

Mercedes-Benz Concept A Sedan



The Mercedes-Benz Concept A Sedan provides a glimpse at the next-gen A-Class, a model not currently sold in the U.S.

With its wide grille and angled-in headlights, the Concept A Sedan bears a resemblance to the Mercedes-AMG GT Concept from the front. The Concept A's headlights are more angular, however, and feature a 3-D grid element within the housings that glows different colors depending on the light source, thanks to a coating of UV paint. The taillights feature the same internal grid structure, and they mirror the headlights in shape.

Just looking at it, you might think this is a thinly veiled look at the next-gen CLA sedan. That's possible, but we've heard the A-Class sedan will be a separate model slotting between the CLA and C-Class. The Concept A's dimensions don't give many clues as to where it will fit. It is 179.9 inches long, or 2.4 inches shorter than a U.S.-spec CLA. It's also 3.6 inches wider, an inch taller, and described as having coupelike proportions.

Regardless of where it will fall in the lineup, the Concept A looks good for a small car. Mercedes says the concept marks the next evolution of its "sensual purity" design philosophy.



"Our Concept A Sedan shows that the time of creases is over," Gorden Wagener, chief design officer for Daimler AG, said in a release. "With its perfect proportions and a sensual treatment of surfaces with reduced lines, it is the next milestone of 'Sensual Purity' and has the potential to introduce a new design era."

Mercedes-Benz provided no details on the powertrain, but we expect a produc-

tion version to receive turbocharged four-cylinder options, potentially making upward of 355 horsepower in AMG trim.

The production version of the Concept A Sedan will be coming to the U.S. It will likely ride on the next generation of Mercedes' MFA platform, which is shared with next-gen iterations of the GLA and B-Class, and it will do battle directly with the Audi A3 sedan. **Alex Nishimoto**

FIRST LOOK



Audi e-tron Sportback concept



More than just a design concept, the Audi e-tron Sportback concept features an electric drive system that will be adopted in future all-wheel-drive models from the automaker. One electric motor on the front axle and two on the rear send power to all four wheels. Delivering almost 500 hp in boost mode, the e-tron Sportback can reach 62 mph from a standstill in 4.5 seconds, according to Audi. Range is estimated at more than 310 miles per charge.

Like any concept should, the e-tron has dramatic styling elements, including 23-inch wheels, bulging rear haunches, and configurable lighting signatures. When the doors are opened, drivers and passengers are greeted with visual welcome signals from the lights. Below the daytime running lights and to the left and right of the grille, there are two light fields each with 250 LED lights, which are used to create graphics and signals to other drivers on the road.

Inside, the e-tron Sportback holds up to four people. The model features a floating center console and two touchscreens for accessing control systems. You'll also notice there are no exterior mirrors, thanks to small cameras that help provide a view of the outside environment, all while eliminating blind spots for the driver.

Arriving in 2019, the e-tron Sportback will follow the launch of the standard Audi e-tron SUV, which comes out next year. The brand's first dedicated EV was previewed by the Audi e-tron Quattro concept, which Audi says is capable of 310 miles of range and can sprint to 62 mph in 4.6 seconds. **Kelly Pleskot**



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BIN COUNTER Jim Hackett isn't a car guy, but neither was the man who kept Ford out of bankruptcy in 2009, Alan Mulally. He doesn't have to be a Bob Lutz to be successful.

Mark Fields out as Ford CEO



In a startling move, Ford ousted CEO Mark Fields, 56, on May 22 after months of speculation and three years of declining stock prices.

Fields is replaced by Jim Hackett, a Ford board member who led a new mobility unit created to expand into new areas of transportation and the former CEO of office furniture maker Steelcase. As the head of Ford Smart Mobility, Hackett was tasked with helping Ford overcome traffic congestion and technology challenges and changing how people get around. Hackett will report to Ford Executive Chairman Bill Ford.

The automaker's shares have fallen 40 percent since Fields took over the top spot from former CEO Alan Mulally in 2014, and upstart Tesla passed Ford in market value. Although Ford earned \$4.6 billion in net income in 2016, profits and market share have declined—a slide that will be tough to reverse because the U.S. auto market has cooled, prompting Ford to cut 1,400 salaried jobs. Part of the profit drain has been expensive recalls, leading to questions about Ford's quality at the recent annual shareholder meeting.

Ford says Fields has elected to resign after a 28-year career with the company. Fields had held leadership positions at Mazda, Ford of Europe, and Ford's premium brand collection before coming back to the U.S. for the top job. But the board questioned his strategic plan, given the market's lack of response to Ford's mobility, ride-sharing, connectivity, and autonomous vehicles initiatives. Prior to the recent annual shareholder meeting, the board convened for an extra day for further clarification from Fields about his vision and strategy for the future.

At a Monday, May 22, press conference in Dearborn, Michigan, Bill Ford said the board met on Friday, May 19, and then he met with Fields. "We decided it was the right time for him to resign," Ford said. It was only at that time that Hackett was "activated" as the replacement. Bill Ford acknowledged the decision was not made hastily but would not say how long it has been in the works.

Hackett, a noted turnaround artist, has a strong relationship with Bill Ford.



MESSAGING Former Ford CEO Mark Fields, right, talks mobility in a December interview with executive editor Mark Rechlin.

Ford's shares have fallen 40 percent since Mark Fields took over as CEO in 2014.

Hackett joined Ford's board in 2013 and was put in charge of the mobility unit in 2016. At 62, he is viewed as an interim leader, but he told reporters he does not feel old. "I plan to be here as long the board will have me," he said.

Hackett might have run a Michigan-based low-tech manufacturing operation, but Bill Ford cited Hackett's reputation in Silicon Valley as a reason for his hiring.

A key weakness in Fields was his inability to charm Wall Street. With Ford stock languishing, the automaker decided it needed an executive who could put a spring in the stock price. The stock price is especially important to members of the Ford family because they hold Class B shares, which give them preferential treatment over other stockholders. Barely 2 percent of all Ford stock is Class B shares, but the Ford family controls 40 percent of the company's voting rights as a result. And Bill Ford is believed to now own the largest chunk of Class B shares.

The poor numbers that led to Fields' firing are signs of a deeper malaise at

Ford, a malaise accelerated, ironically, by what now is looking more like a strategic blunder by Mulally in the mid-2000s—the divestiture of key assets including its premium brands Aston Martin, Jaguar, Land Rover, and Volvo.

Although the decision to raise cash and switch the focus of the company back to the Blue Oval might have spared Ford the scythe of bankruptcy during the recession, Ford is being brutally squeezed by premium brands moving into mainstream market segments. Premium brands account for just 10 to 12 percent of global sales, but they deliver 50 percent of the global industry's profits.

With Lincoln struggling as Ford's lone premium brand, Ford simply cannot afford to miss the industry's other mega trend—the coming of autonomous vehicles and the boom in electric vehicles and mobility services that will come with them. Under Fields, progress was slow, with Ford being outpaced and outflanked by rivals such as GM and Nissan, as well as Silicon Valley insurgents such as Tesla, Google, and Uber.

Bill Ford clearly sees Hackett as the executive who can put the automaker back on track.

Alisa Priddle, with Angus MacKenzie and Mark Rechlin

Lynk & Co 03 Concept



Geely is moving quickly to launch its newest automotive venture, Lynk & Co. Formed in late 2016, the brand has already shown an SUV and also unveiled a new sedan concept at the Shanghai auto show.

Lynk & Co will sell its first product, the 01 SUV, in China later this year before bringing it to the U.S. in 2018. By 2021, the automaker's lineup will expand to four vehicles, including a four-door sedan, which is previewed by the new 03 concept shown in Shanghai. If you take a look at the grille, headlights, and tail-lights, you'll notice the sedan receives many of the same design features as the SUV.

A sibling to Volvo, thanks to its common parent company, Lynk's new vehicles will be underpinned by the CMA platform, which will also make its way to the Volvo XC40, S40, and V40. The new brand will also borrow transverse-mounted 1.5-liter three-cylinder and 2.0-liter four-cylinder engines from Volvo.

To make the car buying process easier, Lynk & Co will offer fixed prices, online sales, and home delivery services. It will also introduce what it calls the world's first in-car digital share function, allowing friends to share access to the same vehicle. The automaker has announced it will offer a lifetime warranty and free data on every vehicle it sells.

Kelly Pleskot



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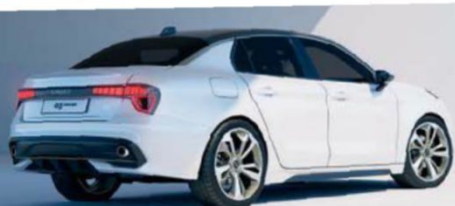
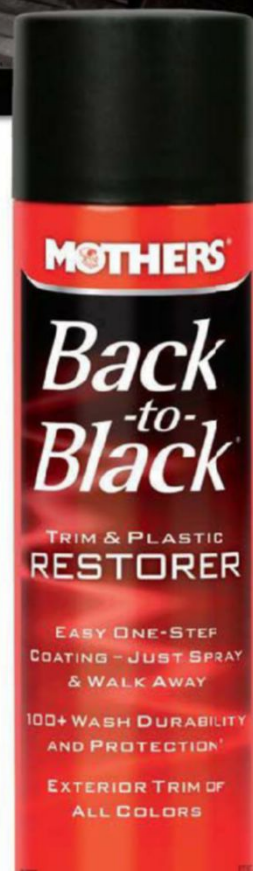
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Intake

2018 Volkswagen Atlas



They should have called it AtLast, because it's a good decade and a half overdue.

Alas, the Atlas is

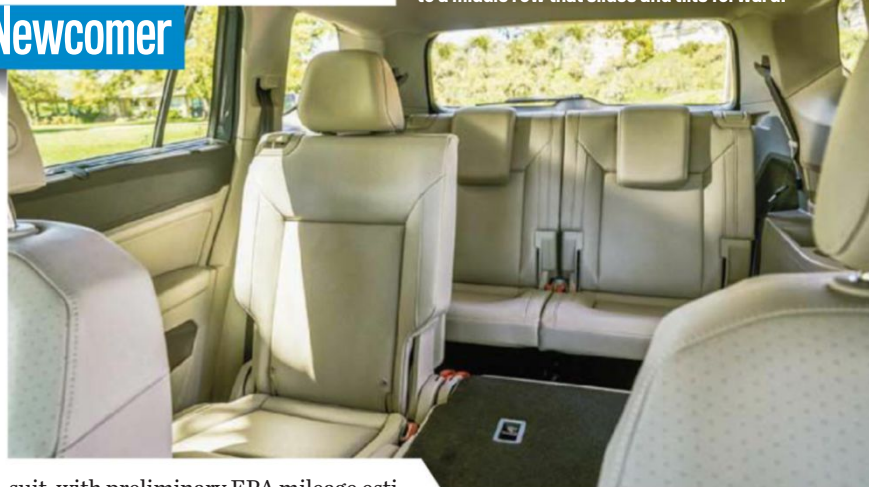
Volkswagen's tardy entry in the crowded midsize three-row, seven-seat SUV segment. It competes directly with the Ford Explorer, Honda Pilot, Toyota Highlander, Mazda CX-9, and to an extent the five-passenger Jeep Grand Cherokee.

The Atlas is huge by VW standards—9.5 inches longer than the Touareg. The Atlas is also far less expensive than the Touareg—and many of its competitors—starting at just \$31,425. But few will want a base Atlas with a 235-hp 2.0-liter turbo-four and front-wheel drive.

Most customers will wind up with a 3.6-liter narrow-angle V-6, which realistically starts at \$35,915 for front-drive and \$37,715 for all-wheel drive—right among the established players.

With a claimed curb weight of 4,502 pounds, the Atlas is a heavyweight. The quiet V-6's 276 hp and 266 lb-ft should be enough to drag the big VW to 60 mph in just under 8.0 seconds. The eight-speed automatic supplied by Aisin shifts smoothly, but there's a huge gap between second and third gears that leaves you without oomph in the critical 45–65-mph passing range. Fuel economy isn't a strong

Newcomer



suit, with preliminary EPA mileage estimates at just 17/23 mpg city/highway for the all-wheel-drive six-cylinder Atlas.

At highway speeds, the VW's cabin is suitably calm, with occasional wind noise as the only real nuisance. The ride quality is excellent—aided by a long 117.3-inch wheelbase—though big bumps can send structural jitters through the cabin. Cornering grip is good.

Sadly, the Atlas' bland styling is devoid of any resemblance to other VW products. Inside is a sea of plastic and vinyl with Volkswagen's trademark no-nonsense interior design. The ergonomics are excellent, with padded touch points and

ROOM TO STRETCH Its third row does something few others do: fit full-size adult humans. Accessing the rearmost two seats is easy, thanks to a middle row that slides and tilts forward.

all-day comfortable seats, but many trim pieces use hard, ungrained plastic. And although the new infotainment screen is slickly integrated behind touch-sensitive glass, the navigation system is, in typical VW fashion, *nicht gut*.

The highest trim level (the \$49,415 SEL Premium) is the only way to get leather seats, a Fender audio system, LED taillights, and a digital instrument cluster. It's not worth it—lesser-equipped models are just fine.

In a segment full of established players, the Atlas is a competent entry but a wall-flower late to the party. **Jason Cammisa**



The Volkswagen Atlas is far less expensive than the Touareg—and many of its competitors.

SPECIFICATIONS Base Price \$31,425–\$43,615 **Vehicle Layout** Front-engine, FWD/AWD, 7-pass, 4-door SUV **Engines** 2.0L/235-hp/258-lb-ft turbocharged DOHC 16-valve I-4; 3.6L/276-hp/266-lb-ft DOHC 24-valve V-6 **Transmission** 8-speed automatic **Curb Weight** 4,150–4,500 lb (mfr) **Wheelbase** 117.3 in **L x W x H** 198.3 x 78.3 x 70.0 in **0-60 MPH** 7.6–8.6 sec (MT est) **EPA City/Hwy/Comb Fuel Econ** 17-18/23-25/19-20 mpg (V-6) **Energy Consumption, City/Hwy** 187-198/135-147 kW-hrs/100 miles (V-6) **CO2 Emissions, Comb** 0.94-1.01 lb/mile (V-6) **On Sale In U.S.** Currently



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We Say...



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Dumb and Dumber America's driver education is failing us all



Driver's education is usually taught in high school health class. In those very same underfunded schools that can barely afford math and science textbooks, we are trying to teach adolescents how to pilot two-ton death machines.

In California, all that's required to obtain a learner's permit is 30 hours of classroom instruction and six hours behind the wheel; a provisional license requires an additional 50 hours of supervised driving. Some states with districts too poor to offer driver's ed allow kids to learn how to drive online. Home-schooling allows parents to vouch that their kids have the requisite knowledge to apply for a license, and little prevents parents from fudging the numbers for the required hours of driving practice, either.

An eight-year study by the University of Nebraska showed that young drivers who dodged proper driver's education are 75 percent more likely to get a traffic ticket, 24 percent more likely to be involved in an accident causing death or injury, and 16 percent more likely to have an accident of any kind. And that's with our bare-bones system in place.

By comparison, a German driver's license requires a minimum of 25 to 45 hours of professional driving instruction

plus 12 hours of theory and eight hours of first aid training. In other words, you know what you are doing when you get your first set of car keys. Comparable German and U.S. federal data shows that young American drivers' injury-crash rates have declined only slightly since 1990 while young German drivers' injury-crash rates have dropped by more than half in the same period.

How our DMVs handle failure is appalling, too. When California discovered that only 45 percent of applicants passed its written test, rather than requiring better driver education, its DMV essentially made the test easier.

In America, we treat a driver's license as a right, not a privilege. We beta-test our children on the open road, and the results are no surprise: The fatal crash rate per mile driven for 16- to 19-year-olds is triple the rate for the rest of the population, according to NHTSA's Fatality Analysis Reporting System and the Insurance Institute for Highway Safety.

What's more, newly minted 16- to 17-year-olds are twice as likely to die in

We treat a driver's license as a right, not a privilege. We beta-test our children on the open road.

crashes as 18- to 19-year-olds are. How many times does a young driver's first brush with hydroplaning or an icy road result in an accident? Was it because behind-the-wheel instruction never required such training?

Sure, there are graduated licensing laws that grant automotive privileges in stages, such as driving at night or with passengers. But is that enough? Even though vehicle safety systems have meant fewer fatalities on the road, the overall number of crashes has stayed relatively static for the past 30 years, according to NHTSA data. That means drivers aren't improving.

This lack of road knowledge continues as people age. An online test created by an insurance clearinghouse shows that more than half of all Americans of any driving age are still unable to pass a standard rules of the road test.

The test is not hard and includes such gimmes as, "What is the safest way to cross multiple lanes to take an exit on a highway?" (Answer: One lane at a time, duh.) That said, the test did include some brainteasers such as whether you should obey a flashing red light, stop sign, steady red light, or a flag man above all the others. And there are some physics questions such as whether brake failure, driving too fast, or driving a too-heavy car is the most common cause for a vehicle to skid. (You can test your smarts at cheapcarinsurance.net and click "Rules of the Road.")

The Cheap Insurance folks broke out the test performance data by age range, and it asserted that pretty much everyone lacks requisite automotive knowledge: Not only do Americans not know what they are doing behind the wheel, but they also don't know they are doing it wrong.

Given that the DMV basically rubber-stamps driver's license renewals, is it any wonder that no one bothers to brush up on their knowledge or skills? Perhaps it's time for America to re-evaluate what is required to be allowed to pilot death machines down our nation's roads. ■

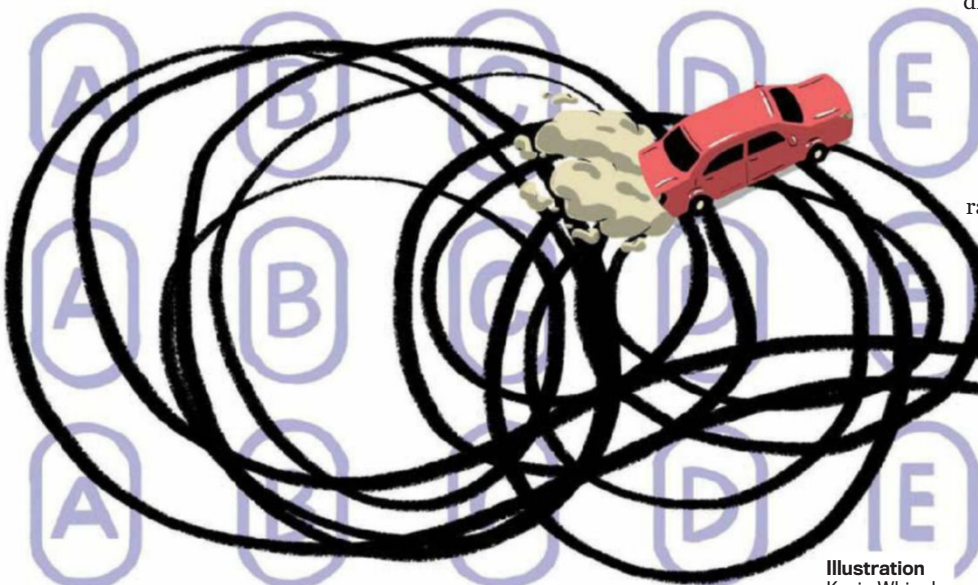


Illustration
Kevin Whipple

From the *Motor Trend* Archive...**REARVIEW**

'68s—FIRST PHOTOS, MORE FACTS

**MOTOR
TREND**

A close look at the new Javelin, Corvette and Lincoln Mark III

TESTS: 5 Luxury Specialty Cars, Hot 4-speed Dart, 2 Ram-Air 400 Firebirds: Stick vs. Auto Racing: Indy 500 • World 600

**50****AUGUST 1967
PRICE: \$0.50**

This is a cover we want framed! Featuring the then-new '68 Corvette Stingray painted in oils, our August issue was all

about speed. We took readers inside the C3 Corvette in our special 10-page spy photo feature. Elsewhere, we completed an automatic-versus-manual test using the now-legendary Pontiac Firebird as our test subject. Then, unlike now, the manual handily beat the slushbox.

**AUGUST 1987
PRICE: \$2.50**

Our fold-out cover featured America's seven speediest cars to see which was fastest. The results? The Ford Mustang GT (144.29 mph) and the Chevrolet Corvette (152.77 mph) were the two fastest.

**AUGUST 2007
PRICE: \$4.99**

Long before HBO introduced the television world to Westerns' infamous regicide, the Infiniti G37 Coupe earned the title of King Slayer, besting the BMW 335i in one of several hot comparison tests.

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We Say...



Frank Markus
TECHNOLOGUE

Small Wonders Two promising boosters for our ever-shrinking engines



Every fortune-teller in the car biz knows that the engine downsizing, down-speeding, and boosting efforts expended

to date are but the tip of a metaphorical iceberg that's expanding even as the literal ones melt. Simple turbocharging, with trick exhaust plumbing, twin-scroll snails, or variable-geometry turbine inlets sufficed for the initial round of modern engine downsizing, but today's engineers are resorting to smaller, faster-spooling sequential turbos, electric turbos, supercharger/turbo combos, and mild hybridization. Two fresh ideas recently caught my attention.

The Torotrak V-Charge variable-drive blower can work with a standard turbocharger as a lag filler or stand alone. Its centrifugal blower looks like a turbo's compressor snail and is belt-driven via an interesting toroidal CVT like the car transmission I covered in my March 2008 column. Picture two halves of a donut mold—one connected to the pulley, the other to the blower. Two discs roll between these halves. Changing their angle changes the ratio. When contacting straight across the donut mold, the ratio is 1:1. When contacting high and outside on the input and the low and inside on the output, you get 0.28:1. Low on the input to high on the output equals 2.82:1. Shifts across this broad ratio spread take far less than 400 milliseconds. A second fixed planetary "gear set" provides a

further 12.5:1 step up in ratio, but like the donut rollers, these "gears" have no teeth. They transmit torque very quietly via the same special traction fluid.

With the engine spinning at 1,000 rpm, the blower speed can vary between 8,750 and 88,125 rpm, contributing torque-filling boost more quickly than a two-stage turbo or a clutched supercharger could. A 1.0-liter (125-hp/125-lb-ft) Ford Focus inline-three was fitted with a V-Charge unit and larger main turbocharger sized to peak at 150 hp and 181 lb-ft. Fuel consumption increased by 3 to 4 percent, but acceleration performance matched that of a 1.5-liter EcoBoost I-4, at a 12 percent fuel savings. Torotrak says the unit is 97 percent quieter than a Roots type blower, weighs just 13 pounds, and should cost the same as an electric supercharger (without the power electronics, battery, etc.).

The second idea comes from Hansen Engine Corporation out of Plymouth, Minnesota. Instead of instantly varying the blower's speed, Hansen's better mousetrap varies the displacement of a twin-screw Lysholm-type supercharger to deliver the low-rpm responsiveness of a supercharger with the torque and efficiency of a turbo. The secret is never making the engine work to compress air that would only end up getting vented to a wastegate.

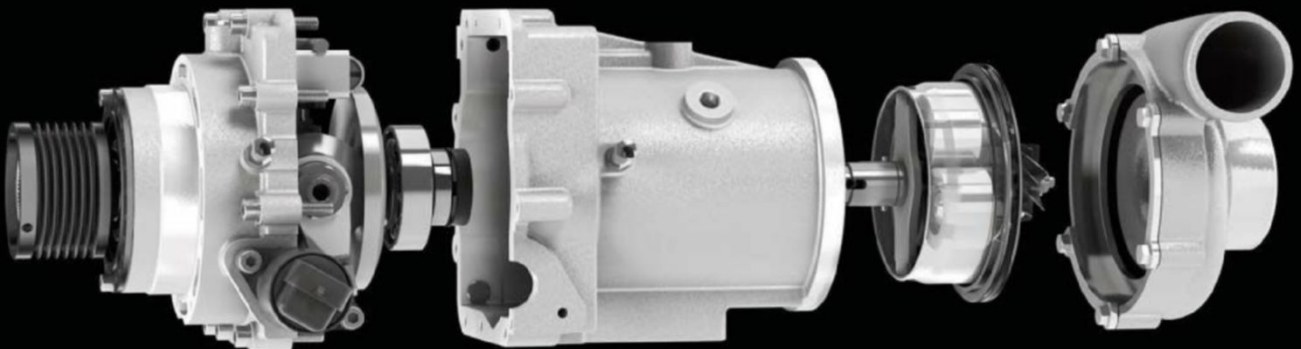
Here's the brief: When idling or cruising, a sliding window on the side

of the blower stays open so no air gets compressed and the crankshaft only senses less than 1 hp of friction and oil-seal drag. Drop the hammer, and this window closes enough to generate the maximum pressure the cylinders can tolerate, gradually opening as revs rise to maintain said pressure while reducing crankshaft load.

Ford analysis of a 2.0-liter EcoBoost engine converted to run a Hansen VDS blower showed the engine's performance surpassed the gain of upsizing to a 2.3-liter EcoBoost engine while maintaining the 2.0-liter's fuel economy. And that was on an engine using turbo-optimized exhaust plumbing and compression (9.3:1). Free up the exhaust, increase compression, and sacrifice some of the added performance to down-speed the engine with a taller axle ratio, and Hansen VP of engineering Paul Cross is convinced that this could become the first supercharger to outperform a turbo for fuel economy and responsiveness.

Cross is also optimistic the cost can eventually reach parity with turbos, taking into account lower-temperature materials required for "cool side" supercharging and reduced emissions challenges relative to the turbo's thermal inertia at startup. He notes it will require some acoustic countermeasures in the intake tract. Then again, maybe we can all learn to revere supercharger whine the way some love noisy turbo wastegates. ■

Simple turbocharging sufficed for early downsizing, but two new ideas have caught my attention.



V-CHARGE The donut "variator" is housed on the left side of this explosion. The planetary non-gears are just inboard at the right.



MIKE CONNOR

MT CONFIDENTIAL

The gorgeous Bentley EXP 12 Speed 6e concept unveiled at the Geneva show teased elements of the all-new Continental GT that will make its world debut at the Frankfurt show in September. You'll see the same basic proportion on the new Conti, thanks to the MSB architecture it shares with the Porsche Panamera. And the rear end of the EXP 12, with its single oval taillights, is pretty close to that of the production Conti. But the front fender line is different, as are the doors. Whispers out of Crewe suggest the top-spec W12 model will debut with more than 600 hp, with the V-8 boasting at least 520 hp. Remember, the MSB platform allows for a rear-drive version, which could make the next-gen Conti GT3-R a very sporty drive. **Daimler is reportedly** playing a major role in the development of the production version of the Aston Martin DBX SUV concept. Sources in Stuttgart suggest the forthcoming Aston SUV, due to launch in 2018, will be heavily based on the next-generation Mercedes-Benz GLE Coupe. It will of course get different exterior styling and a more upscale interior, with lots of exquisitely stitched and brogued leather. Under the hood will be AMG's ubiquitous 4.0-liter twin-turbo V-8, tuned this time to deliver about 520 horsepower and plenty of torque, hooked up to Daimler's nine-speed automatic transmission and 4Matic all-wheel-drive system.

One that got away: Audi has reportedly junked plans for a V-8 engine with a desmodromic valve system developed with the help of motorcycling subsidiary Ducati. The naturally aspirated engine was said to develop more than 700 hp and spin to a screaming 10,000 rpm. Although rumored to be a pet project of Ferdinand Piëch, concerns over quality and durability issues associated with a mechanical, springless system made it a nonstarter. This decision won't ease rumors that Audi's recent review of "non-core" assets have the automaker looking to shed its billion-dollar Italian confection.

Volkswagen is racing away from diesels in the aftermath of #Dieselgate. Wolfsburg insiders say five all-electric Volkswagens are scheduled to debut within the next five years. The vehicles include a compact hatchback, five- and seven-seat SUVs, the production version of the Budd-e microbus concept, and an upscale sedan. All will be built on versions of VW Group's new MEB electric vehicle platform. Flexible and scalable, MEB can be configured to package enough battery power to deliver a driving range of more than 350 miles.



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They Say...

Roland Krueger

PRESIDENT, INFINITI MOTOR COMPANY



Roland Krueger left BMW to join Nissan as a senior vice president and president of the Infiniti Motor Company starting in 2015 and now oversees the luxury brand from the Hong Kong headquarters. Most of his experience at BMW was on the business end, but the 50-year-old Krueger started his career as a designer for Mitsubishi and Daimler's Smart brand. In 2013 he completed a 622-mile solo cross-country ski trek from the Antarctic Coast to the South Pole, pulling a 280-pound sled for 50 days—for relaxation.

Is the QX80 Monograph concept the look for the next-generation QX80? It is a design study to showcase the next QX80 that we are planning to bring to market by the end of the year. The architecture of the car is the same. The current one came out in 2011, and we [gave it] a face-lift in 2014. It will have a new look and interior upgrade.

Why not change the architecture?

It is a very successful car and architecture. When you look at powertrain, capacity for seven, it fits right in.

You could keep those elements but get a more dynamic ride by changing the underpinnings. Yes, but if you look at the car and the power of the car, it really is quite strong. It is very successful.

So no plans to change the powertrain, either? It will be the same powertrain.

Are you considering launching a new subbrand under the Monograph name?

Monograph will be used for design explorations. We want to be very disciplined and consistent with the naming of our cars. The Q50 has a very consistent grade walk with Red S, Silver S, that exemplifies a sport model of a car.

Are people catching on to the new names? We have been using the badges for quite

Interview



“You have to have your own space and make sure product design is unique and brand definable.”

a while, so it has become established in the market. What is important is we have global consistency with our grades.

There are new top designers at Nissan and Infiniti. What kind of impact might we expect? Alfonso [Albaisa] is the successor to [Nissan chief creative officer] Shiro Nakamura, who retired. We look forward to his input and have a new designer coming in, Karim Habib, [Infiniti chief designer, effective July 1], who I know very well from my past, and I look forward to working with him. He is the former head of BMW design.

Is this an opportunity to get new ideas?

This is a natural design succession, and it is great for Alfonso, who has come up with some new and creative ideas going forward. We've developed a brand philosophy around design, and that is something that will continue and be one of the key attributes of Infiniti. Karim comes in at the right time. We have defined clearly our design language and philosophy, and he is going to take it to the next level. He has a lot of experience in the premium market.

How does Infiniti break the juggernaut of Mercedes and BMW? Or do you want to stay at the level you are at now?

You have to have your own space and make sure product design is unique, identifiable, and brand definable. New models going forward have a unique front look and a distinct graphic to the rear and the rear lights, easily identified day and night as an Infiniti. We are humble enough to recognize that we are a challenger brand, and we continue to have a daring but forward-looking approach to what we do with our products. I think that is a very successful business model.

Are there holes in your lineup you would like to see filled? We decided consciously to concentrate only on a few concepts, like sporty sedans, coupelike sedans, and powerful crossovers and SUVs. We want to make sure those cars are executed the right way, and we will probably not enter every single segment that is out there.

Is there any impact from Nissan's acquisition of Mitsubishi on the Infiniti brand?

Being part of the [Renault-Nissan] Alliance is a wonderful thing, now enlarged with Mitsubishi. That is a wonderful opportunity for economies of scale, sourcing technology. The Renault-Nissan Alliance is the largest EV maker in the world.

Are there EVs coming for Infiniti?

We're working on something [pure EV], but it's too early to announce. We already have hybrids. **Alisa Priddle**



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READERS' THOUGHTS ON PAST ISSUES

Millennials and the manual

This is written in appreciation of Mark Rechlin's article in the May issue ("Reference Mark"). Born in 1999, I am one of the last members of the millennials. Reading *Motor Trend* and other car magazines, all I ever hear about my generation is that we don't care about cars, and by the time we have kids cars won't even exist. To me this is a strange observation. Living in rural South Carolina, I may be out of the latest trends, but I can't see any of that happening anytime soon. We couldn't wait to get a license and the freedom of the open road. I drive a stick-shift truck and love anything with a manual transmission. It was refreshing to finally hear someone agree with our point of view. We may be headed toward autonomy and ride-sharing, but driving isn't going anywhere for a while. Thanks, Mr. Rechlin.

ANDY HOFFMANN
 NORTH AUGUSTA, SOUTH CAROLINA

The fact that a kid born in 1999 can drive makes us feel old. The fact that a kid born in 1999 prefers driving a manual makes us feel hopeful. Ride-sharing might be the way of the future for economic reasons. Autonomy advances will help with safety. But hopefully enthusiast options remain at least a niche within the industry.—Ed.

Tesla acceleration

Your times were off on your P100D testing (Intake, May). It looks to me like it took a few minutes plus 10.5 seconds for the quarter mile. At anyone else's drag strip, while you were fiddling with menus, the guy in his '71 Pinto (automatic) cleaned your clock, got his time slip, made it back to the pits, and posted his crushing victory—and 43rd consecutive 20.7-second bracket win—on YouTube.

LAIRD WHITE
 SAN RAMON, CALIFORNIA

Yeah, well, on that 44th run, you're going to get smoked. And that one run is all the Tesla owner cares about, anyway. As is often the case with high-powered sports cars, the idea that you could in theory might be just as important—if not more so—than actually doing it.—Ed.

Your article on Tesla's acceleration points to the need for higher torque at

higher speeds. This can be done with a two-speed transmission on each motor like the Tesla Lotus-based prototype, or upgrade the motors and controllers for higher maximum rpm to flatten out the torque curve in the normal operating range. For a high-speed sports car, each of the three current motors could be replaced with two or three motors connected to planetary gearsets operating like the CVT transmission on the Prius. That way the motors could be continuously operated at the point just before tires lose traction. Imagine 1.4 g continuous acceleration!

REESE GRAVES, JR
 CLEVELAND, TENNESSEE

Our copy editors scrambled to look up "need" in the dictionary to see if the definition changed. It hasn't. So maybe that's not quite the right word. But then again, we don't need Ludicrous mode, either. We still love it.—Ed.

Supercar dreams ...

Ain't technology grand? May's issue showcased the Tesla Model S P100D's 0–60 of 2.3 seconds and the McLaren 720S' sub-2.9 time. Just the reality of technology. I sadly posted a YouTube

video of my son in a stock 2017 2.0-liter Camaro running my dead-stock 7.4-liter 1972 Chevelle, complete with stock bias plies and smog pump. Two passes. One winner. Thanks for a great mag.

GEORGE EISCHEN
 FAIRVIEW, OKLAHOMA

I liked your article on the McLaren ("Recalibrating the supercar," May). As the young people would say, it's pretty cool. I have been driving for over 50 years, so I remember when 0–60 times of 9 or 10 seconds were deemed quick. Keep up the good work, *Motor Trend*!

LAURA GRAFF
 VIA EMAIL

Reveled reading your coverage of the Lamborghini Aventador S ("Viva La Rivoluzione," May). This vehicle by said company is, to my passion for automobiles (age 74), the most stunning design, arresting presence as to be the ultimate in its class. Mechanically magnificent with a V-12 naturally aspirated engine in this world of turbo/supercharged induction folly. Also appreciate your candid citations of the shortcomings of this hallmark creation (e.g. single-clutch versus dual-clutch transmission). This car is the stuff dreams are made of.

WILLIAM PANNACCI
 SCRANTON, PENNSYLVANIA

A 2.0-liter outrunning an engine four times its size. A "need" for more torque on a 2.28-second electric sedan. Yesteryear's quick, today's pedestrian. The stuff dreams are made of, indeed. Yet we have people asking for more cars like the Yugo?—Ed.

... and retail reality

I just received my May issue and was distressed to see that you did not review one vehicle priced under \$65,000. I long for the day that you will start reviewing vehicles like the Yugo and Chevette again. At least those were cars the average person could afford.

JOHN DOLLMAN
 SEATTLE, WASHINGTON

Stay tuned for next month's Head 2 Head: Tata Nano vs. Lada Granta! Seriously, though, the coming model year will have some blockbuster launches of affordable vehicles, such as the Toyota Camry, Honda

READERS ON LOCATION

KEITH JENKINS, a dedicated reader from Hanover, Massachusetts, does what every good *Motor Trend*er should do while abroad—bring a copy of the magazine and pose with it in front of cool stuff. The cool stuff in this case is the Natural Pool at Arikok National Park in Aruba. Also, wear sunscreen.





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Your Say...

Accord, Chevrolet Traverse, VW Tiguan, Kia Stinger, BMW X2, Ford EcoSport, and Buick Regal and Enclave. You'll see coverage of those vehicles soon.—Ed.

As a long-time *Motor Trend* subscriber, I always look forward to each new issue. The feature cars in this issue were a \$285,000 McLaren, a \$423,000 Lamborghini, a \$196,000 Porsche, three very pricey SUVs ranging from \$63,000 to \$89,000, a \$98,000 Maserati Levante, a pair of AMGs for \$93,000 and \$103,000, and two pricey trucks. Whatever happened to articles and reviews on vehicles that the majority of your readers could actually afford? We all like to dream occasionally, but I gained little practical or useful information from this entire issue. You might want to think about trending back to your roots if you want to better serve your readers. There are many interesting vehicles out there in the sub-\$50,000 world.

RICH PETERSON
CONCORD, OHIO

We absolutely agree, but every once in a while we create an issue just for the lottery-fantasy dreamers out there. That said, the market for affordable cars has a ton of gems right now, which is why the June issue had a comparison of eight luxury sedans with \$399 monthly lease payments, not to mention the July issue's profile of eight penny-pinching alt-fuel vehicles. Hope that was more to your liking.—Ed.

I just checked the price shown for the first 13 cars described in the May issue, starting with the Tesla Model S P100D and finishing with the Porsche 911 Turbo S. Prices ranged from a measly \$62,610 for the Ram Power Wagon to \$421,350 for the Lamborghini Aventador. Average price for the 13 cars: \$185,427 and change. It makes me think *Motor Trend* is becoming the new automobile enthusiast version of *Architectural Digest* or *Yachting* magazine.

NEIL LITTLEFIELD
VIA EMAIL

Yachting, eh? What's the line from Caddyshack? "Ahoy, polloi." Yes, we jest. But what is life without the finer things? We definitely understand that most folks are interested in cars they can relate to and dream about. Just look at the table of contents for this issue: ridiculous exotics, snarling ponycars, affordable crossovers,

and some zippy sedans and hatchbacks—a perfect blend.—Ed.

I've been a subscriber since the '80s, but the cars in the May issue were just silly. Not a car in there I could afford. What I enjoy reading about most are fun reasonably priced cars at least somewhere in the vicinity of my budget range. Even though I can't afford too much these days (three kids lined up for college starting next year), I still enjoy driving my '04 Focus SVT over the Santa Cruz mountains to my job in the Valley. Highway 17 and the back roads can be a blast. But one after another, starting with the \$285K McLaren ... come on, guys. I make a pretty good salary, but my disposable income puts me in sub-\$45K car territory. Just one or two featured cars per issue in that range will keep this reader, and I'm sure others, happily reading on.

KEVIN ALLEN
SANTA CRUZ, CALIFORNIA

Although often seen as flights of fantasy, these big-dollar automobiles establish new technology, and the best of that finds its way into cars attainable for the general population. Yes, that Ludicrous Tesla costs more than some people will spend on cars in their lifetimes. But electrification is a major part of the future, and Tesla's advancements (especially in extending battery-pack range) are influencing what the rest of us likely will be able to afford within this decade. We'll probably never see budget McLarens populating the parking stalls at Costco, either, but the advances made by the original Acura NSX are now part of every Honda.—Ed.

0-100-0

Shelby didn't invent the test. They responded to Aston Martin's 0-100-0 time of, I believe, 26.2 seconds of a year or two before. Ah, you're all so young.

TOLY ARUTUNOFF
TULSA, OKLAHOMA

First of all, receiving a letter from a living legend is a great honor. As to your point, some of us are indeed on the younger side. But others, such as Kim Reynolds, are old enough to know better. And as it turns out, he DID know better. That mistake is on an editor, who cut two crucially important words. We know Shelby didn't invent the test. What we should have said is that Shelby made it famous with that 13.8-second time. Thanks for setting us straight, Toly.—Ed.

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HEAD VS.

DOES RATIONALITY ECLIPSE DESIRE WHEN IT COMES TO A STARTER SUV?



Whether it's basketball or boxing, everyone loves a hard-fought battle between two evenly matched rivals. Sure, a blowout is fun if your team wins, but the games that come down to the last second are the ones we talk about years later. This fight, between the redesigned 2017 Honda CR-V and the also all-new 2017 Mazda CX-5, is one of those fights.

About a year ago, we conducted a Big Test of the entire fleet of compact cross-over SUVs, and the Honda and Mazda finished one-two—despite being at the tail end of their respective model cycles. That shows you how good they were: still the best even though the competition had four or five years to play catch-up. Now it's Honda and Mazda's time to set the benchmark yet again.

In terms of size and sales, Mazda has always been an underdog, but one that routinely punches well above its weight class. The CX-5, in particular, has been a perennial *Motor Trend* favorite in its class, though it's never won an SUV of the Year award. The Honda CR-V, however, has. The SUV sales leader (and I mean among all SUVs, not just in the compact class), the CR-V is a dominant force in



DAVID AND GOLIATH Honda sells more CR-Vs in America than Mazda sells total vehicles in this market, but being a best-seller doesn't automatically make it the better vehicle.

HEART

the industry, thanks to its combination of practicality, reliability, and versatility. The Mazda, though, is more fun.

Or is it?

For 2017, the CR-V moves to the new Civic platform, which spawned the sedan we're also enamored with. Like the Civic, the new CR-V rides and handles considerably better than before, so much so that my notes read: "I think I could seriously scare the average person with what this crossover is capable of on a back road."

The difference is in the suspension damping. The CR-V corners shockingly flat, giving it a planted and confident feeling rather than the top-heavy floatiness we generally expect from crossovers and SUVs. Body control is excellent, allowing smooth and purposeful weight transfers and implying a subterranean center of gravity despite the CR-V having more ground clearance than the CX-5.

The CX-5, by contrast, is more of a wild child. As with other Mazdas, the rear end

feels slightly loose, as if it wants to rotate just slightly and point you into corners. The CX-5's center of gravity doesn't feel as low as the CR-Vs, though, and the weight transfer happens much more quickly, so you have to slow down your steering inputs and drive more deliberately. Neither vehicle's front-biased all-wheel-drive system made itself known behind the wheel, nor did either seem to affect the steering much. The Mazda's steering feel is heavier, and the Honda's feels more naturally weighted.

Some will argue crossover buyers don't care about handling. But they do, just for different reasons. No one wants to feel like their SUV is going to tip over every time they turn into a parking lot or swerve to avoid a kid who just ollied his skateboard into the street. Nor does anyone enjoy being tossed side to side by a vehicle with poor body control. Here, the CR-V shines. Its damping provides an impressively smooth ride and minimal head toss. Large bumps and potholes are deftly dispatched and barely felt or heard in the cabin. The CX-5 isn't far behind, but its sportier handling comes with a stiffer ride, so you feel the bumps more.





I preferred the Honda's unflappable stability, but features editor Christian Seabaugh liked the CX-5's playfulness. Regardless, if you thought trading in for a crossover meant you'd never experience the joy of driving again, you're wrong.

One thing anyone can agree on is the importance of good brakes. And here Honda nails it. The pedal itself is appropriately firm, and the brakes respond immediately and linearly. The initial bite isn't grabby, but the braking force ramps up quickly and stops the vehicle with confidence. The Mazda's brakes are plenty strong, but they lack the initial bite, and you have to press the pedal farther before they feel like they're really digging in.

On the speedy side of things, it's a bit less clear. Both engines make roughly the same power and torque, but they do so in very different ways. The Mazda's naturally aspirated 2.5-liter four-cylinder feels much more responsive than the Honda's 1.5-liter turbo-four. We definitely



preferred the Mazda's sharply exponential power delivery that seems to pick up velocity as you go faster, building all the way to its high-rpm peak torque and horsepower, compared to the Honda's low-down grunt and steady, locomotive accelerative force.

The characteristics of these engines are amplified by their transmissions. The Mazda's six-speed automatic is an excellent gearbox, shifting smoothly and quickly and never hesitating to downshift and get you more power. In fact, it's nearly impossible to not get a downshift

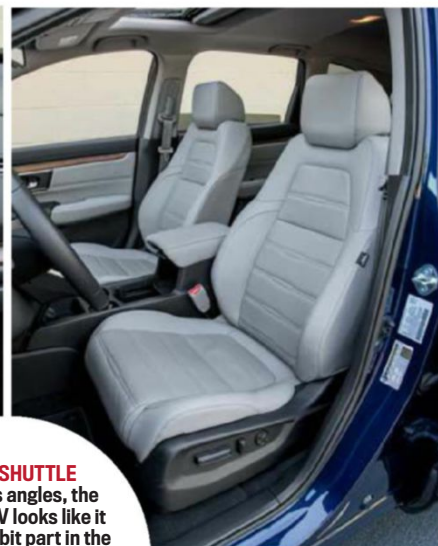
when accelerating from a steady pace. "The CX-5 is not quick, but I'm never left wanting for more," Seabaugh said. "Credit to the transmission—it shifts with speed and purpose. It's happy to hold a gear, too. In Sport mode the transmission even rev-matches downshifts while braking into corners. It's really a sporty car.

"Honda's CVT is one of the best in the business," he continued. "It's responsive, but it isn't tuned to be super jerky off the line, and it surges through the rev range, imitating gears every once in a while when prudent. I kept it in D most of the time; S didn't seem to do much except keep the revs slightly higher. L was actually a better Sport mode than S." I agree—the Honda's transmission was slower to change ratios but did so with a smoothness that took any bite out of the engine.

Their characters, though, are deceiving and counterintuitive. On the test track, the seemingly less aggressive CR-V hit 60 mph nearly a second quicker than the sporty CX-5, needing just 7.5 seconds to the Mazda's 8.4, though the advantage narrowed to 0.6 second by the end of a quarter mile. Although both vehicles pulled the same 0.81 average g on the skidpad, the nearly 200-pound-lighter Honda maintained its speed advantage with a 27.9-second figure-eight lap at 0.60 average g. The Mazda—hampered by its aggressive stability control, which couldn't be deactivated—needed 28.5 seconds at 0.58 average g. More predictably, the lighter Honda stopped 10 feet shorter, in just 116 feet.

It's a similar story in efficiency. The CR-V has a superior EPA rating of 27/33/29 mpg city/highway/combined, though it fell short of that in our Real MPG testing with a result of

Where the rump meets the road, the Honda's front seats are more comfortable and supportive.



SPACE SHUTTLE

With all its angles, the Honda CR-V looks like it might get a bit part in the next Star Wars movie. The massive amount of interior space, though, is no joke.



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21.9/34.2/26.1. The CX-5, on the other hand, receives an EPA rating of 23/29/26 mpg city/highway/combined and also disappointed with 18.4/29.9/22.3 in Real MPG testing.

But crossover buyers place a real premium on versatility, especially in this class, where packaging a compact interior is a tough ask. These vehicles need to move people and their stuff, and sometimes a lot of it. Although the CR-V is only slightly larger on the outside, it's a world of difference on the inside. The CR-V offers an additional 8.3 cubic feet of cargo space over the CX-5 with the seats up, thanks in part to its boxier design versus the Mazda's sexier sloping roof. Both vehicles offer a delightfully low load floor, each of which hits about midthigh on an average-height man.

Both offer reclining and fold-flat rear seats, which can be dropped using levers in the cargo area, but the CX-5 gets bonus points for its 40/20/40 split and the



ability to drop each segment separately from the cargo area. We also appreciated the CX-5's optional rear-seat heaters and 2.5-amp USB charging ports in the center armrest. The Honda's 2.5-amp USB chargers are at the base of the center console by your feet, giving you limited range of motion when plugged in.

In terms of actual usability, though, the Honda pulls ahead. Despite giving up 1.5 inches in wheelbase, the CR-V offers considerably more rear-seat space than the CX-5. True, the official headroom, shoulder room, and legroom

measurements don't show much of a difference. But if you compare cargo volumes behind the first row, you'll see the Honda offers an extra 16.2 cubic feet, and as noted before, only half of that advantage comes from the cargo area. Or as the 6-foot-1 Seabaugh put it: "Damn near luxury-car levels of room when sitting behind myself." On the Mazda, he said: "The back seat is a bit tight when sitting behind my driver's seat. Despite the scallop in the back of the driver's seat, my knees are up against it."

The single people and double-income, no-kids crowd might be muttering, "So what?" right now, but ask your friends with kids about loading rear-facing car seats sometime. They'll also appreciate that both vehicles' rear doors open super wide, 80 degrees for the Mazda and a full 90 degrees for the Honda.

Moving up front, the experiences continue to diverge. Honda has gone with something of a starfighter design theme, and Mazda has done an admirable job of building a modern-luxe interior. We prefer the Mazda's black and white two-tone scheme over the Honda's medium gray and light gray, and the Mazda's materials feel much richer and more expensive (though neither car's "wood" trim is in any way convincing). "The Mazda makes the Honda look down-market," Seabaugh said. "That's not a slam on the Honda. It's just an example of how much Mazda has raised the game."

As for where the rump meets the road, the Honda's front seats are more comfortable and supportive, and the Mazda's are flat and lack sufficient lumbar support. Then again, the Mazda was nearly silent inside, save some engine noise; the Honda suffered some wind noise and a lot of tire

Mazda has done an admirable job of building a modern-luxe interior. The materials feel much richer.



A CUT ABOVE
With its contrasting colors, plush materials, excellent build quality, and near-silent interior, the CX-5 had us making comparisons to luxury crossovers.



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Raceway

MAY
19-21

Canadian Tire
Motorsport
Park

MAY
26-27

Lime Rock
Park

JUNE
23-25

Road
America

JULY
28-30

Mid-Ohio
Sports Car
Course

AUG.
11-13

Utah
Motorsports
Campus

SEPT.
1-3

Circuit of the
Americas

SEPT.
15-17

Sonoma
Raceway

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As so often happens, it ultimately came down to a fight between the head and the heart.

noise, especially on poor pavement.

Technology wise, we prefer the Mazda's simple and straightforward infotainment system, though we give Honda credit for how greatly it's improved its own system. Honda listened to its owners and gave us back an audio volume knob and improved the system's responsiveness, but we still find the user interface too layered and cluttered. As for the Mazda, we're disappointed with the lack of Apple CarPlay or Android Auto availability—although Mazda has hinted at its addition in a future model year.

In the adjacent spaces, the CR-V gains a point for a plethora of thoughtful and useful storage bins and easily accessed charging ports.

When it comes to driving technology, both vehicles offer a full suite of optional active safety aids, including automatic

emergency braking, adaptive cruise control, and lane keeping assist. We like the CX-5's ability to use adaptive cruise control in stop-and-go traffic, but we find its blind-spot warning system hyperactive and hyper-vigilant, beeping wildly when the car in the next lane is two car lengths behind. We also each experienced an unnecessary panic brake from the system, something we've noticed in other Mazdas. The CR-V's collision warning system was also overzealous, blinking BRAKE in the instrument cluster far too often, but at least it only made noise if it was actually going to be a close call. When it comes to lane keeping systems, though, Honda's is clearly more advanced and more aggressive, doing its best to keep you in the center of the lane; the Mazda's doesn't engage until you're wandering over the line.

Then there's the numbers game. Both manufacturers offer a three-year/36,000-mile basic warranty, five-year/60,000-mile powertrain warranty, and three-year/36,000-mile roadside assistance. As tested, these two loaded

versions are just \$355 apart, with the Honda being slightly more expensive. Their lesser trim levels follow a similar pricing ladder. You might recall from our Big Test last year—which featured the previous generation of these two vehicles—that the Honda holds its value better and is cheaper to maintain, repair, and insure, per our partners at Intellichoice. The redesigned 2017 Honda also received five-star front, side, and overall crash test ratings and a four-star rollover rating from the National Highway Transportation Safety Administration. The Mazda has not yet been tested.

As so often happens in these sorts of comparison tests, it ultimately came down to a fight between the head and the heart. On more consumer-focused tests like these, we often find ourselves saying things such as, "Well, we'd rather have





2017 Honda CR-V Touring AWD	
Front-engine, AWD	
Turbocharged I-4, alum block/head	
DOHC, 4 valves/cyl	
91.4 cu in/1,498cc	
10.3:1	
190 hp @ 5,600 rpm	
179 lb-ft @ 2,000 rpm	
6,500 rpm	
18.3 lb/hp	
Cont variable auto	
5.64:1/2.28:1	
Struts, coil springs, anti-roll bar; multilink, coil springs, anti-roll bar	
12.3:1	
2.3	
11.1-in vented disc; 10.2-in disc, ABS	
7.5 x 18-in cast aluminum	
235/60R18 103H (M+S)	
Hankook Kinergy GT	

POWERTRAIN/CHASSIS	
DRIVETRAIN LAYOUT	
ENGINE TYPE	
VALVETRAIN	
DISPLACEMENT	
COMPRESSION RATIO	
POWER (SAE NET)	
TORQUE (SAE NET)	
REDLINE	
WEIGHT TO POWER	
TRANSMISSION	
AXLE/FINAL-DRIVE RATIO	
SUSPENSION, FRONT; REAR	
STEERING RATIO	
TURNS LOCK-TO-LOCK	
BRAKES, F; R	
WHEELS	
TIRES	

2017 Mazda CX-5 Grand Touring	
Front-engine, AWD	
I-4, alum block/head	
DOHC, 4 valves/cyl	
151.8 cu in/2,488cc	
13.0:1	
187 hp @ 6,000 rpm	
185 lb-ft @ 4,000 rpm	
6,200 rpm	
19.6 lb/hp	
6-speed automatic	
4.62:1/2.77:1	
Struts, coil springs, anti-roll bar; multilink, coil springs, anti-roll bar	
15.5:1	
2.7	
11.7-in vented disc; 11.9-in disc, ABS	
7.0 x 19-in cast aluminum	
P225/55R19 99V M+S	
Toyo A36	

DIMENSIONS	
WHEELBASE	
TRACK, F/R	
LENGTH X WIDTH X HEIGHT	
GROUND CLEARANCE	
APPRCH/DEPART ANGLE	
TURNING CIRCLE	
CURB WEIGHT	
WEIGHT DIST, F/R	
TOWING CAPACITY	
SEATING CAPACITY	
HEADROOM, F/R	
LEGROOM, F/R	
SHOULDER ROOM, F/R	
CARGO VOLUME, BEH F/R	

TEST DATA	
ACCELERATION TO MPH	
0-30	
0-40	
0-50	
0-60	
0-70	
0-80	
0-90	
0-100	
PASSING, 45-65 MPH	
QUARTER MILE	
BRAKING, 60-0 MPH	
LATERAL ACCELERATION	
MT FIGURE EIGHT	
TOP-GEAR REVS @ 60 MPH	

CONSUMER INFO	
BASE PRICE	
PRICE AS TESTED	
STABILITY/TRACTION CONTROL	
AIRBAGS	
BASIC WARRANTY	
POWERTRAIN WARRANTY	
ROADSIDE ASSISTANCE	
FUEL CAPACITY	
REAL MPG, CITY/HWY/COMB	
EPA CITY/HWY/COMB ECON	
ENERGY CONS, CITY/HWY	
CO2 EMISSIONS, COMB	
RECOMMENDED FUEL	

this one because it's better to drive, but you should probably buy that one because it's a better all-around people mover." Frankly, we hate recommending the car we wouldn't spend our own money on, but we know the priorities of enthusiasts tend to be different than most people who buy crossovers. We get it—we're outliers.

This time, though, we don't necessarily have to couch it that way. Yes, the Mazda CX-5 is prettier, more luxurious, and a little more fun to drive, but the Honda CR-V is just damn good. If you want to be coldly rational, the CR-V has more space, gets better fuel economy, has more-advanced technology, and is cheaper to own. It's also very good to drive. In the past, we lead-footed sports car lovers might have excused the Mazda's deficiencies in exchange for its lusty driving experience. But this time, we have no hesitation in recommending the CR-V to enthusiasts as well as our automotively apathetic friends and family. It's a narrow margin of victory, but whether your other car is a Camaro or a Corolla, if you want a compact crossover, you'll be slightly better served by the new Honda CR-V. ■

2.8 sec	0-30	2.7 sec
4.1	0-40	4.4
5.6	0-50	6.1
7.5	0-60	8.4
9.8	0-70	11.0
12.6	0-80	14.8
16.2	0-90	—
20.7	0-100	—
3.7	PASSING, 45-65 MPH	4.4
15.8 sec @ 89.0 mph	QUARTER MILE	16.4 sec @ 83.8 mph
116 ft	BRAKING, 60-0 MPH	126 ft
0.81 g (avg)	LATERAL ACCELERATION	0.81 g (avg)
27.9 sec @ 0.60 g (avg)	MT FIGURE EIGHT	28.5 sec @ 0.58 g (avg)
1,750 rpm	TOP-GEAR REVS @ 60 MPH	2,000 rpm
\$34,735	BASE PRICE	\$31,635
\$34,735	PRICE AS TESTED	\$34,380
Yes/Yes	STABILITY/TRACTION CONTROL	Yes/Yes
6: Dual front, front side, f/r curtain	AIRBAGS	6: Dual front, front side, f/r curtain
3 yrs/36,000 miles	BASIC WARRANTY	3 yrs/36,000 miles
5 yrs/60,000 miles	POWERTRAIN WARRANTY	5 yrs/60,000 miles
3 yrs/36,000 miles	ROADSIDE ASSISTANCE	3 yrs/36,000 miles
14.0 gal	FUEL CAPACITY	15.3 gal
21.9/34.2/26.1 mpg	REAL MPG, CITY/HWY/COMB	18.4/29.9/22.3 mpg
27/33/29 mpg	EPA CITY/HWY/COMB ECON	23/29/26 mpg
125/102 kW-hrs/100 miles	ENERGY CONS, CITY/HWY	147/116 kW-hrs/100 miles
0.66 lb/mile	CO2 EMISSIONS, COMB	0.76 lb/mile
Unleaded regular	RECOMMENDED FUEL	Unleaded regular



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THE FORE

Words Jonny Lieberman **Photographs** Drew Phillips



ONCE MORE UNTO THE PONYCAR BREACH



There ain't nothing Shakespearean about it. The ponycar wars are no longer a Tempest in a teapot.

Gone are the days when Camaros and Mustangs were straight-line beasts (at least in the eyes of their owners) and lacked any sort of handling or finesse.

But what's past is prologue. These days, even the entry-level iterations offer up actual sporty good times. And the midgrade versions—Camaro SS and Mustang GT—can bloody the lip of Europe's finest. For not a ton of coin, either. Then you have the even more potent, track-focused stuff—like these two thoroughbreds. When the war has

been raging for 50 years, you want to go into battle with your biggest guns. For team Camaro, that's the ZL1. For the Ford Performance folks, it's none other than the Shelby GT350R. These are extreme machines in both monstrous function and opulent excrescence.

Is this the perfect comparison test? No. The naturally aspirated Shelby makes a

VERWAR

Chevrolet Camaro ZL1 VS. Ford Mustang Shelby GT350R | **COVER STORY**



healthy 526 horsepower from its lovably cacophonous 5.2-liter flat-plane crank V-8, whereas the Camaro's relatively subdued 6.2-liter supercharged V-8 produces a mighty 650 horsepower and 650 lb-ft of torque—which is more than 200 more lb-ft of twisting force than the naturally aspirated Voodoo motor can invoke (429 lb-ft). Comparing forced

induction to natural aspiration is always a sticky wicket. Not quite apples to oranges—more like apples to pears. You can make cider from both, but there is a difference. At least both feature six-speed manual transmissions—the ZL1 is also available with a 10-speed automatic. Further complicating this test is that Chevy has announced (though as of this

writing no one has yet driven) a 1LE version of the ZL1—thus creating the nearly palindromic ZL1 1LE. One could argue that the Shelby GT350 is to the ZL1 as the GT350R is to the ZL1 1LE. But as Donald Rumsfeld so sagely said, “You go to war with the army you have, not the army you might want.”

COMPARISON

These are extreme machines in both monstrous function and opulent excrescence.

GALLOPING OFF
Would Chevy and Ford engineers from 1967 believe these two are still going at it? And will the flying Camaro and all-electric Mustang of 2067 still be at each other's throats? Check back with us in 50 years.



Also, I'd counter that this is a pretty damn good comparison test. At this moment in time, the GT350R is the highest-performing ponycar Ford makes, and the same is true of the Chevy. They are the beasts atop the food chain. They're also right on top of each other in price. The ZL1 we tested stickers for \$65,230. The much more limited-production Shelby R: \$68,020.

I'd be remiss if I didn't point out that you're going to have a difficult time picking up a GT350R for the sticker price. Two years after it first went on sale, the ultimate Mustang is still selling for \$25,000 or thereabouts over sticker. I'll never forget the first time I drove an R. Although I was conscious of the dealer markup, after one corner, "totally worth it" went through my head. Likewise with the mightiest-ever Camaro, I remember watching associate editor Scott Evans detonate a mushroom-cloud burnout and thinking \$65K is a bargain.

The Shelby remains a mystery to me, and here's why: The GT350 is a Mustang with a brilliant engine. The GT350R—which ostensibly only adds a bit of aero, carbon-fiber wheels, and R compound tires then removes the back seat and reworks the suspension—is as good to drive as a Porsche GT3. It is a pure and totally wonderful driver's car. In fact, last year at Best Driver's Car, a Shelby R finished in second behind the McLaren 570S. More impressive, we judged the GT350R better to drive than the Porsche 911 Carrera S, Audi R8 V10 Plus, and Dodge Viper ACR, among others. The

field included some serious cars, some of them outright supercars, yet we declared superior the bright yellow Mustang with the loud exhaust. It's that great.

The ZL1 hasn't run the Best Driver's Car gantlet yet, but it stacks up to other cars we've lapped on the big track at Willow Springs International Raceway. The supercharged Chevy (with the six-speed manual) beat the Corvette Grand Sport, AMG GT S, 911 Carrera S (991.2), 911 Turbo S, 991 GT3, and a prototype McLaren 570S. Not bad for a Camaro.

In the interest of high-quality reportage, we of course relapped the ZL1





(the same one Randy Pobst lapped in December) against the Shelby. The first takeaway is that despite being way down on power and torque, the Shelby was only 0.39 second slower around Big Willow than the ZL1. That's impressive but not surprising. At Mazda Raceway Laguna Seca, the GT350R laid down a quicker lap than the Ferrari 458 Italia, Acura NSX, Lexus LFA, and various Nissan GT-Rs. I claim magic, but as Randy mentioned, "I think that wing is doing something."

The second thing you should note: The Camaro ZL1 was 1.74 seconds slower this time around Willow (1:27.90 versus

1:26.16; the GT350R ran a 1:28.29). Same car, same track, same driver. This bothered us, too. Regardless of the reason, the ZL1—at least on paper—should be much quicker than the R. But it wasn't.

What about on the test track? In a straight line, the ZL1's power advantage was apparent, though not at first. The Shelby hit 60 mph in 4.0 seconds compared to 3.8 for the ZL1. Now, 0–60 times are as much about launch technique as anything else, and road test editor Chris Walton didn't have an easy time with either car. "I tried five launch control settings, varying the rpm and slip," he noted for the ZL1. "I ended up beating the best of those—surface set to general, launch rpm at 3,800, and a slip target of 12 percent—though not by much. I had to make several attempts, but it was about a 0.06-second advantage with my organic-based launch control."

As for the Shelby, he noted: "This car was a whole lot trickier to launch than I remember. Having worn tires didn't help, either. Because the torque peaks at 4,750, it's fairly easy to bog it on the launch. The best technique was a 3,200-rpm, clutch-slipping launch to maintain the rpm. Once the tires hook up at about 20 mph, there is an ever so slight dip in acceleration."

The quarter mile is where the ZL1's power overwhelms the R. The Shelby gets down the strip in 12.2 seconds with a trap speed of 119.0 mph. The Chevy rips down 1,320 feet in 11.8 seconds at 123.9 mph. Half a second and nearly 5 mph is pretty significant in drag racing circles.

When it comes to stopping, the two cars are much more even. The Camaro stops from 60 mph in 97 feet to the Shelby's 99. Anything less than 100 feet is world class. However, take a look at Walton's comments. "The ZL1's brakes are so much more effective than they feel," he said. "I don't like the squishy, long-travel pedal. I prefer a hard pedal and modulating the brake with pressure rather than the distance the pedal travels, as in the ZL1. This pedal is kind of squishy, but the distances are ridiculously

Why the Camaro was slower this time

Readers will no doubt notice the Camaro was significantly slower in its Willow Springs track test this time. Same car, same track. Why? *Motor Trend's* resident hot shoe, Randy Pobst, has the answers:

"The discrepancy here is alarming but not unusual in the track world. Similar to the Dodge Viper ACR in its Best Driver's Car testing, lap times can be greatly affected by a track condition known as a green track.

"The event preceding one of our tests largely affect the level of grip we'll be blessed with. Sometimes, a full race group will clean the surface and lay down some sticky rubber, increasing grip. It's my guess that nothing much had run at Willow Springs the day or two before we showed up, or maybe motorcycles, whose tiny contact patches are no help.

"Another clue is that the Shelby-special Michelin Sport Cup 2s on the GT350R felt merely adequate, prompting us to verify that they really were the Ford spec. (They were.)

"Either that, or I forgot how to drive."



short and consistent." Four separate stops varied in length by just over a foot.

Walton was a much bigger fan of the GT350R's brakes. "These are absolutely stupendous brakes," he said. "Very firm pedal, straight as an arrow, no dive, and the distance kept getting shorter as the brakes and tires grew hotter. There were eight stops total: 107, 104, 103, 102, 102, 105, 99, 101 feet." That last bit helps explain—in my mind at least—the lap times. The Shelby starts working better the harder you beat on it. Still, the checkered flag goes to the Camaro.

The two ponycars are tied in terms of lateral grip, both showing off a peak force of 1.08 g. Just a few short years ago, grip numbers like those would be headlines. Today, they're merely excellent. In our



HORSE RACE

Even a cursory glance at the speed trace should leave you wondering, "How the heck does the GT350R wind up only 70 feet behind the ZL1 at the checkered flag?" The Camaro is dramatically faster on the front straight, grips better around the long, lower-speed Turn 2, and slingshots around the very quick Turn 8 faster than the Shelby. But the Ford

catches up in nips and bits—a little here, a little there.

The GT350R repeatedly brakes a little better, particularly approaching Turn 3, the omega corner; it momentarily notches a peak-speed win between Turns 6 and 7. Heroically, it claws back part of that gap through the terrifying Turn 9. True, we've lapped this very ZL1 here before and saw an even quicker 1:26.16 lap, but of course this Mustang was facing the same temperature, barometric pressure, and humidity. On this day, the ZL1 shined but only by a fraction. **Kim Reynolds**



RANDY POBST

"Tires matter. Special sticky Shelby-spec Michelins, instant brakes, and some unusual Camaro understeer in 9 kept The Little 5.2 That Could close."

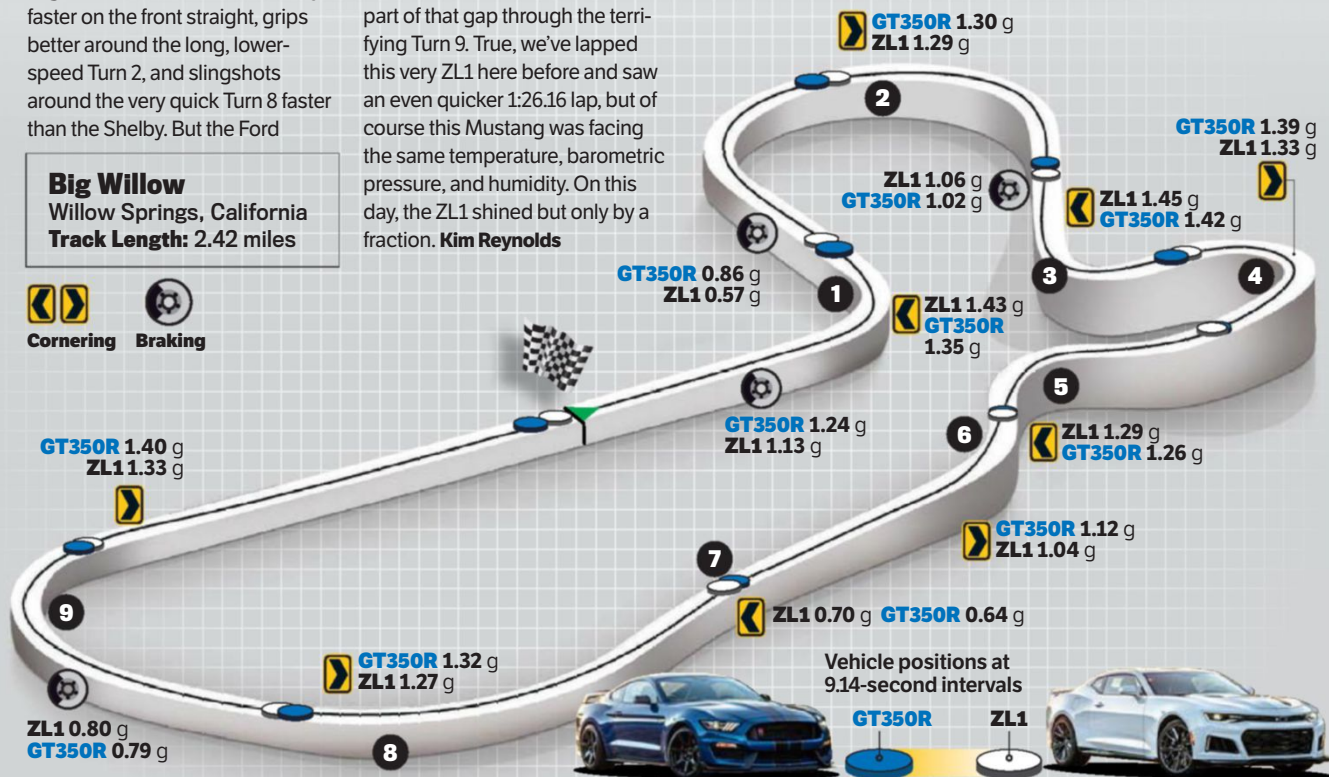
Big Willow
Willow Springs, California
Track Length: 2.42 miles



Cornering



Braking



BEST LAP TIMES

CAMARO ZL1
1:27.90SHELBY GT350R MUSTANG
1:28.29

HEAD 2 HEAD

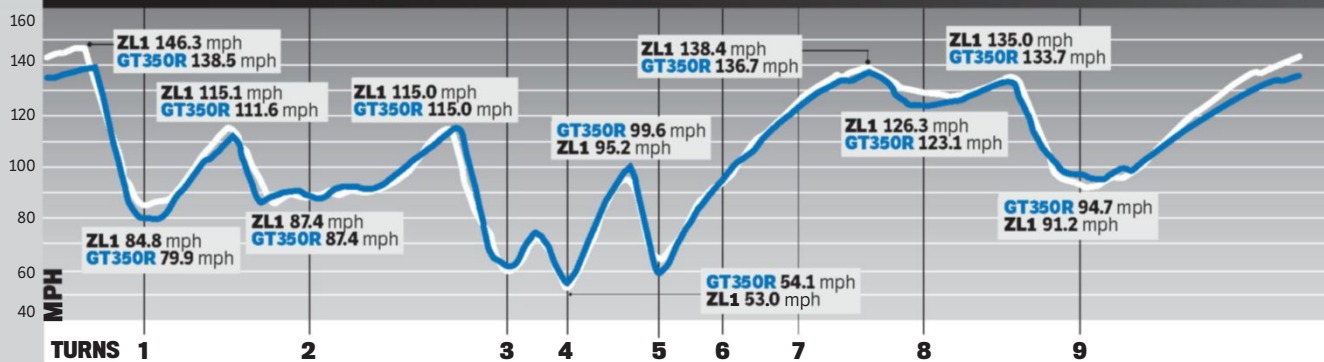


figure-eight test, you might think the more powerful car with better braking ability and equal grip would be the quicker car. You'd be mistaken. The Shelby pipped the ZL1, 23.1 seconds to 23.2. (The 10-speed auto version of the ZL1 ran a 23.1-second lap.) The one thing we haven't talked about is weight, and the GT350R is nearly 200 pounds lighter than the ZL1—3,713 pounds versus 3,912. That big lump of a supercharged V-8—while potent—puts way too much weight

in exactly the wrong spot. For reference, the SS 1LE weighs 3,735 pounds. I will go on record stating I preferred the way the SS 1LE handled compared to the ZL1—and to the GT350R.

But *Head 2 Head* is more than



bench-racing the numbers. Surely the owner of either machine isn't going to hire a professional race car driver to pop off laps or spend time at the drag strip with a GPS-enabled data logger to see if they can shave hundredths off a launch. No, what matters is how the two cars feel. And although I am not prone to embellishment, I can state that in terms of aural delights, the Shelby sounds 5.6 quintillion times better. It's that palpable a difference in its sonorous quality. Give

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 2017 Chevrolet Camaro ZL1	 POWERTRAIN/CHASSIS	 2017 Ford Mustang Shelby GT350R
Front-engine, RWD	DRIVETRAIN LAYOUT	Front-engine, RWD
Supercharged 90-deg V-8, alum block/heads	ENGINE TYPE	90-deg V-8, alum block/heads
OHV, 2 valves/cyl	VALVETRAIN	DOHC, 4 valves/cyl
376.0 cu in/6,162cc	DISPLACEMENT	315.1 cu in/5,163cc
10.0:1	COMPRESSION RATIO	12.0:1
650 hp @ 6,400 rpm*	POWER (SAE NET)	526 hp @ 7,500 rpm
650 lb-ft @ 3,600 rpm*	TORQUE (SAE NET)	429 lb-ft @ 4,750 rpm
6,500 rpm	REDLINE	8,250 rpm
6.0 lb/hp	WEIGHT TO POWER	7.1 lb/hp
6-speed manual	TRANSMISSION	6-speed manual
3.73:1/2.00:1	AXLE/FINAL-DRIVE RATIO	3.73:1/2.35:1
Struts, coil springs, adj shocks, anti-roll bar; multilink, coil springs, adj shocks, anti-roll bar	SUSPENSION, FRONT; REAR	Struts, coil springs, adj shocks, anti-roll bar; multilink, coil springs, adj shocks, anti-roll bar
11.1:1-15.1:1	STEERING RATIO	16.5:1
2.3	TURNS LOCK-TO-LOCK	2.6
15.4-in vented 2-pc disc; 14.4-in vented 2-pc disc, ABS	BRAKES, F; R	15.5-in vented, drilled 2-pc disc; 15.0-in vented, drilled 2-pc disc, ABS
10.0 x 20-in; 11.0 x 20-in, forged aluminum	WHEELS, F; R	11.0 x 19-in; 11.5 x 19-in, carbon-fiber composite
285/30R20 95Y SL; 305/30R20 99Y SL Goodyear Eagle F1 Supercar 3	TIRES, F; R	305/30R19 98Y; 315/30R19 100Y Michelin Pilot Sport Cup 2
DIMENSIONS		
110.7 in	WHEELBASE	107.1 in
63.4/62.6 in	TRACK, F/R	63.3/63.7 in
188.3 x 74.7 x 52.0 in	LENGTH X WIDTH X HEIGHT	189.7 x 75.9 x 53.6 in
38.4 ft	TURNING CIRCLE	40.4 ft
3,912 lb	CURB WEIGHT	3,713 lb
54/46%	WEIGHT DIST, F/R	54/46%
5	SEATING CAPACITY	2
38.5/33.5 in	HEADROOM, F/R	37.6/ — in
43.9/29.9 in	LEGROOM, F/R	44.5/ — in
55.0/50.4 in	SHOULDER ROOM, F/R	56.3/ — in
9.1 cu ft	CARGO VOLUME	13.5 cu ft
TEST DATA		
ACCELERATION TO MPH		
1.7 sec	0-30	1.8 sec
2.3	0-40	2.4
3.0	0-50	3.1
3.8	0-60	4.0
4.6	0-70	4.9
5.5	0-80	6.1
6.7	0-90	7.3
7.9	0-100	8.7
11.7	0-100-0	12.6
1.5	PASSING, 45-65 MPH	1.7
11.8 sec @ 123.9 mph	QUARTER MILE	12.2 sec @ 119.0 mph
97 ft	BRAKING, 60-0 MPH	99 ft
1.08 g (avg)	LATERAL ACCELERATION	1.08 g (avg)
23.2 sec @ 0.89 g (avg)	MT FIGURE EIGHT	23.1 sec @ 0.89 g (avg)
87.90 sec	2.4-MI ROAD COURSE LAP	88.29 sec
1,500 rpm	TOP-GEAR REVS @ 60 MPH	1,800 rpm
CONSUMER INFO		
\$63,435	BASE PRICE	\$64,545
\$65,230	PRICE AS TESTED	\$68,020
Yes/Yes	STABILITY/TRACTION CONTROL	Yes/Yes
8: Dual front, front side, f/r curtain, front knee	AIRBAGS	8: Dual front, front side, f/r curtain, front knee
3 yrs/36,000 miles	BASIC WARRANTY	3 yrs/36,000 miles
5 yrs/60,000 miles	POWERTRAIN WARRANTY	5 yrs/60,000 miles
5 yrs/100,000 miles	ROADSIDE ASSISTANCE	5 yrs/60,000 miles
19.0 gal	FUEL CAPACITY	16.0 gal
14/20/16 mpg	EPA CITY/HWY/COMB ECON	14/21/16 mpg
241/169 kW-hrs/100 miles	ENERGY CONS, CITY/HWY	241/160 kW-hrs/100 miles
1.20 lb/mile	CO2 EMISSIONS, COMB	1.18 lb/mile
Unleaded premium	RECOMMENDED FUEL	Unleaded premium

credit to the world's biggest-lunged flat-plane crank and the bypass valves on the exhaust. Conversely, the normally righteous-sounding LT4 (in Corvette Z06 duty at any rate) is muffled here in the ZL1. If you're standing behind the Camaro, the exhaust sounds fairly angry, but inside, compared to the Shelby, the Camaro is on mute.

From the driver's seat, the ZL1 is almost a luxury car. The ride is excellent, and the experience is fairly subdued. The ZL1 suffers from the same affliction that strikes the Porsche Turbo. When you're not pounding the bloody edge of the envelope, the car is too docile. There's not much of a reminder that you're driving a world-class sports car. The Shelby GT350R is the opposite. It's almost too much. Due to the superlative steering and sticky tires, the front end tramlines mercilessly. The seats are form fitting as opposed to relaxed fit, and if you have the bypass valve open, the exhaust note is deafening. You might be blissed out mashing the Shelby's throttle as you wail past the Rock Store, but you'll be miserable on the ride back on the clogged 405.

The thing is, when you get these two studs on a winding canyon road, the Shelby is the car you want to be driving. That steering simply comes alive. The GT350R sports one of the best-feeling front ends I've had the privilege of experiencing. It's simply excellent. This Shelby's shifter shifts better, the engine feels better (who wouldn't take an 8,250-rpm redline over a 6,500-rpm limit?), the brake pedal feels better, and the car is sportier in every way. The R is just more fun to drive. I'm not sure how Ford Performance did it, but I think there's a layer of pixie dust baked into the GT350R. There's magic in the web of it.

As for the ZL1, save your angry subscription-canceling letters. Look, Chevy knows it didn't leave everything on the field. That's why the Camaro team is building the ZL1 1LE. In the future, we might pit the Shelby GT350R against the more track-focused, aero-enhanced ZL1 1LE. Or we might wait and match the ultimate Camaro against the upcoming GT500 and/or possible GT500R. Until such a time, the GT350R remains not only the ultimate Mustang but also the ultimate ponycar. Ford has won this battle, but the war has no end in sight. ■





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Let's face it. If you are going to bet big bucks, the car biz is one of the lousier investments. Tech startups are far glitzier and offer looser slots (at least by price-to-earnings or value-to-sales yardsticks). Take your eye off the car-biz action for a minute, and you could be crapping out \$1 billion with a one-generation, over-incentivized mistake.

But some still have the cojones to play the game. The savviest bettors these days are throwing down on compact CUVs, the industry's largest and fastest-growing segment. Chevy has had a seat at the high-roller table with its Equinox, but even after 13 years it's a perennial

fifth-place seller. The cardsharps at Honda, Toyota, and Nissan cash in some hundred-thousand-plus more sales per year. But Chevy's all-new 2018 Equinox brings a fresh pile of chips to the game. We looked at its initial hand last fall and found it encouraging; now we've run the numbers on the mainstream 1.5-liter front-drive offering and are ready to handicap its odds a bit more.

Powertrain We've reported on the Equinox's impressive weight loss (about 400 pounds), much of which was made possible by adopting a lighter four-cylinder-turbo-only engine lineup. First to market is a 1.5-liter version,

created primarily as a Chinese-market tax darling. Rated at 170 hp, it cedes hp leadership to the 1.5Ts in the best-selling Honda CR-V (190 hp) and fourth-place Ford Escape (179 hp), but the Chevy's 203 lb-ft of torque trumps these rivals by 24 and 26 lb-ft, respectively. (The second- and third-place Toyota RAV4 and Nissan Rogue make similar power but less torque from 2.4- and 2.5-liter naturally aspirated fours similar to the old Equinox's base-model mill.)

The Equinox and Escape use a similar jointly developed six-speed automatic,



BIG BET

UPPING THE ANTE IN THE HIGH-STAKES COMPACT CUV GAME.

and the CR-V gets a CVT. Its transmission might be the Equinox's single biggest negative (and the best argument in favor of its sibling, the GMC Terrain, which pairs the 1.5T with a nine-speed). The transmission acts like it bears full responsibility for achieving the Equinox's impressive EPA numbers (26/32/28 mpg city/highway/combined with front-drive, 24/30/26 with AWD). No matter how hard you cane it, Chevy's programming has it grabbing the highest plausible gear whenever the throttle lifts. There's no Sport mode and apparently no



GOLD CHIP OFF THE NEW CHEVY BLOCK
The Equinox upgrades to the new face of Chevrolet with the increasingly unmistakable lamps integrating with the two-tier Bow Tie-divided grille and a smoothly sculpted body.



Performance Algorithm Shift learning. There's no redline printed on the 8,000-rpm tach, but automatic shifts happen at 5,500 rpm—1,000 revs shy of fuel shutoff. This engine is no eager revver, so don't bother manually delaying the shifts.

Don't race competitive crossovers for pink slips, either. This one's run is almost a perfect overlay of our last Escape SE EcoBoost 1.5 front-driver: 9.2 seconds to 60 mph and 16.9 seconds through the quarter mile. But the Equinox is traveling a tad quicker, 81.2 mph versus 80.9. That's a shade ahead of the six-speed automatic RAV4, but big-selling CUVs with CVTs are quicker—the naturally aspirated Rogue is quicker by a tenth or two and the turbo CR-V by more than a second and 8 mph (and both of those testers were slowed by the mass and friction of AWD).

This summer, the Equinox doubles down on its powertrain offerings with

a 252-hp, 260-lb-ft 2.0T version. That one handily trumps the three top-sellers on paper. Although it looks like a push compared to the Ford EcoBoost 2.0T's 245 hp and 275 lb-ft, Chevy's nine-speed automatic should take the hand. Of course September's 137-hp, 240-lb-ft 1.6-liter turbodiesel stands to bring completely new business to the segment.

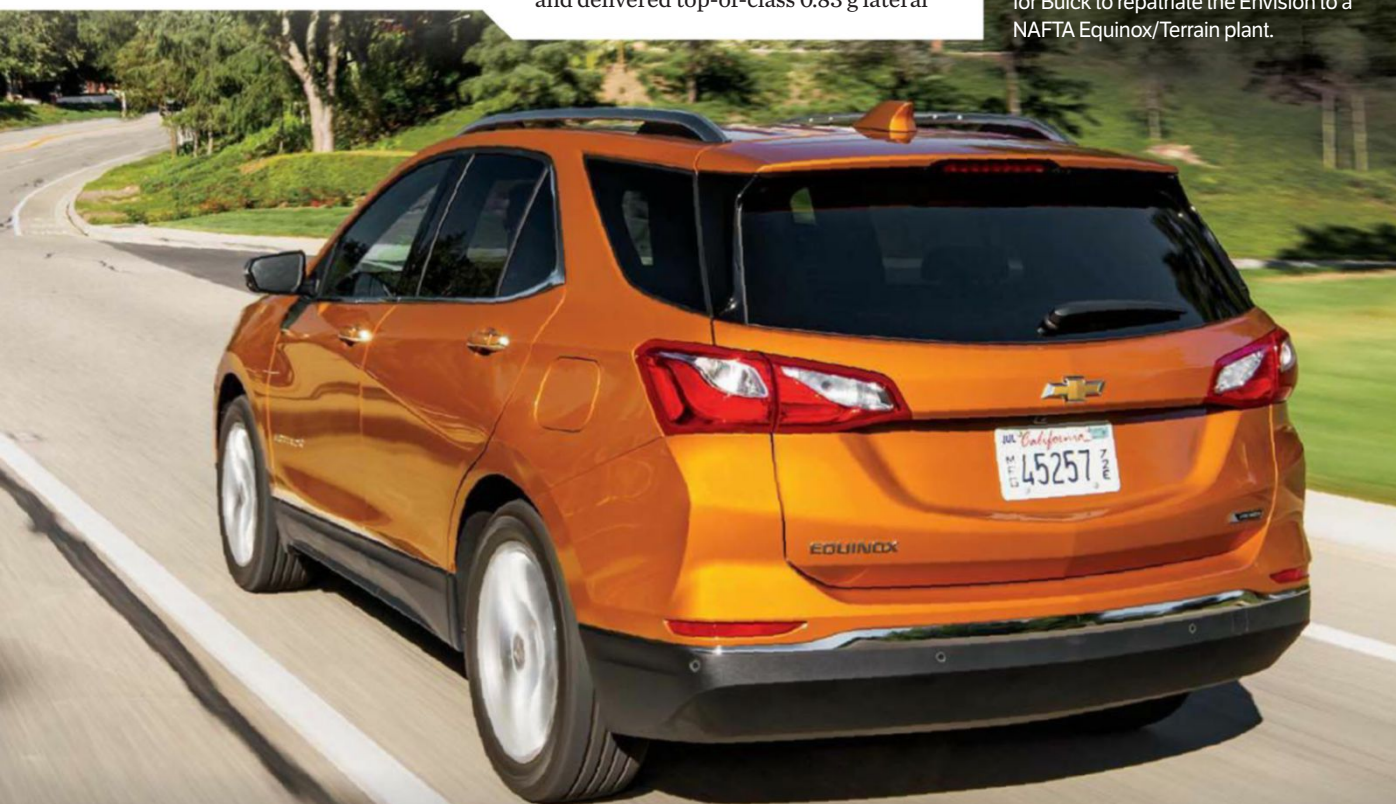
Chassis The borderline obsessive-compulsive weight reduction program—the team used ritual shaming of any members falling short of their targets—produced a savvy chassis design with smarter materials and joining techniques and hard-mounted front and rear suspension/powertrain cradles. The result is a rigid structure that attenuates bumps the way only German luxury sedans could a decade ago, with softer ride-control bushings that carpet over bumps better than before. The steering system points the car quite accurately. Sadly, the information coming through the wheel rim is better at corroborating the tach reading than describing the road surface. The impressive peak torque produces no discernible torque steer even on front-drive models.

The mechanical grip of the 235/50R19 Hankook Ventus S1 Nobel2 all-season tires on our top-drawer Premier test car seemed appropriate for the class and delivered top-of-class 0.83 g lateral



D2 Platform Disambiguation

The new Equinox and GMC Terrain are built on D2 Delta high-roof platform architecture. (The Cruze and Volt use D2 Delta low-roof.) Buick's Envision has been incorrectly reported to share this architecture—an easy mistake to make because GM refers to its platform by the same D2 nomenclature. But the Equinox engineering team was quick to clarify that the Buick's structure, which includes fully isolated front and rear cradles, for example, shares almost no parts with the Equinox/Terrain. Chevy and GMC looked at Buick's toolkit but found that it would be impossible to meet aggressive weight targets without starting from scratch. Chinese-market vehicles are built in different plants (Shanghai GM's Shenyang plant builds the Chevy, and SAIC GM's Dong Yue plant builds the Buick), so don't hold your breath waiting for Buick to repatriate the Envision to a NAFTA Equinox/Terrain plant.



The Equinox's chassis attenuates bumps the way only German luxury sedans could a decade ago.

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acceleration. At first, the brakes felt grabby, but we acclimated easily. Stops from 60 mph ranked a middling 119 feet. Its weight loss brings the Equinox into rough parity with the Honda, undercutting the other top-sellers handily. This pays off in a nimble demeanor on twisty Carolina hill country roads and respectable performance on our figure eight: 27.7 seconds at 0.61 average g. That this performance edges out the much quicker AWD Honda by 0.2 second and 0.01 g



LOOK-NO TOUCH Upscale, high-contrast interior colors look rich and fancy, but some of the materials are pretty hard.

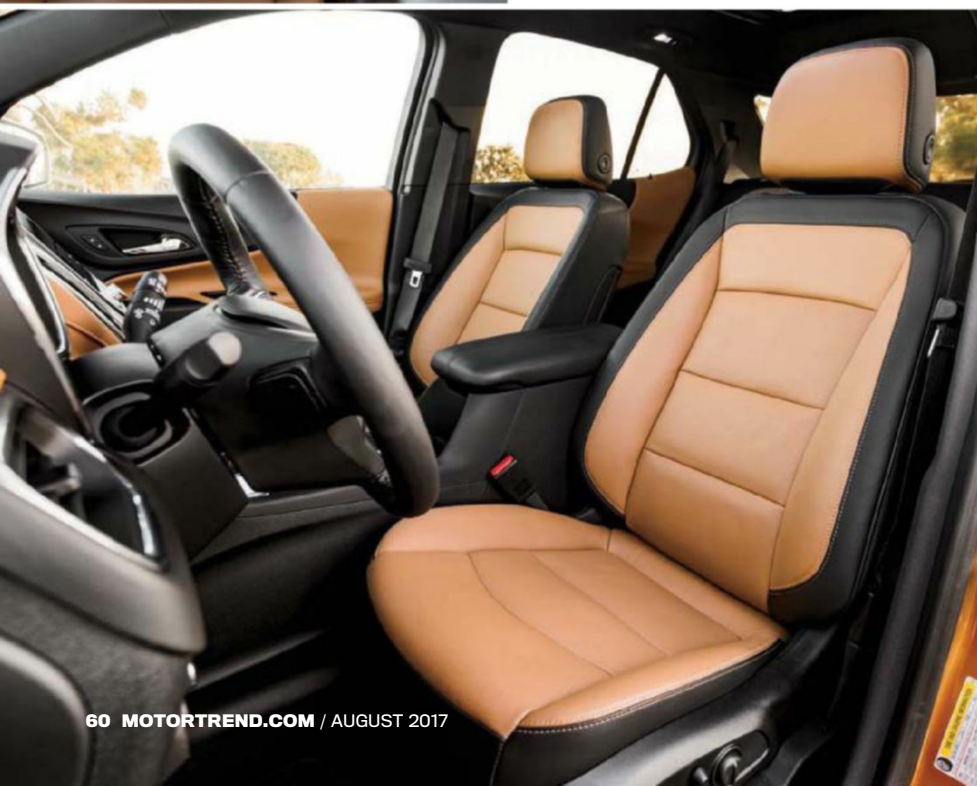
speaks well to the vehicle's lithe agility. In our last Big Test of compact crossovers, only the Hyundai Tucson 1.6T and the burly V-6 Jeep Cherokee—both with all-wheel drive—were quicker and grippier in this test. Of course, if handling is your top priority, consider Mazda's CX-5.

General impressions The interior design and two-tone colors look upscale, though much of the interior plastic feels as hard as a poker chip. But based on design and ease of use of the infotainment screen alone, the Equinox deserves to advance in the sales race. The new rear seat offers great thigh support and two backrest recline angles, the lower of which feels more recumbent than a coach airplane seat. Visibility from the elevated back seats is superb, with a kid-friendly low beltline and available panorama roof. There's room to stow stuff under the cargo floor, but there are only two tie-downs, and they're at the back. Our experience with the Equinox hasn't included any inclement weather or bushwhacking,



but we're dubious of an AWD system that will only engage after you press a button, albeit perhaps at the urging of a warning on the dash.

Bottom line Chevy has strengthened the Equinox's hand considerably with an attractive exterior wrapped around an inviting, easy-to-use interior on a tight, smooth-riding, lithe-handling chassis. Starting at \$24,475, it matches the base-engine prices and undercuts comparable 1.5T variants of the Escape and CR-V. Although this first-round powertrain might not win the class, the subsequent versions look promising indeed. ■



2018 Chevrolet Equinox Premier 1.5T

BASE PRICE	\$31,685
PRICE AS TESTED	\$37,295
VEHICLE LAYOUT	Front-engine, FWD, 5-pass, 4-door SUV
ENGINE	1.5L/170-hp/203-lb-ft* turbo DOHC 16-valve I-4
TRANSMISSION	6-speed automatic
CURB WEIGHT (F/R DIST)	3,465 lb (57/43%)
WHEELBASE	107.3 in
L X W X H	183.1 x 72.6 x 65.4 in
0-60 MPH	9.2 sec
QUARTER MILE	16.9 sec @ 81.2 mph
60-0 MPH	119 ft
LATERAL ACCELERATION	0.83 g (avg)
MT FIGURE EIGHT	27.7 sec @ 0.61 g (avg)
REAL MPG, CITY/HWY/COMB	19.9/30.0/23.5 mpg
EPA CITY/HWY/COMB FUEL ECON	26/32/28 mpg
ENERGY CONS, CITY/HWY	130/105 kW-hrs/100 miles
CO2 EMISSIONS, COMB	0.68 lb/mile

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OUTIE GRILLE

The overall design riffs on the XC90 but with meaningful deviations such as the "Thor's Hammer" headlamps, whose handles are now long enough to touch the grille, with a convex insert.



**VOLVO'S BEST-SELLER GETS FULL SWEDISH
DEEP-TISSUE REJUVENATION**

Words Frank Markus

SPA

TREATMENT



The last Volvo XC60 we had in a 2015 Big Test comparison came off as a bit creaky and outdated, which was to be expected for a SUV in the sixth year of its model cycle. It deservedly finished last. We knocked its interior for a low-mounted and wonky infotainment interface, lackluster-luxe touches, and its propensity to squeak. It had enjoyed a heart transplant that very year—upgrading to today's Drive-E 2.0-liter super/turbo engine, but the integration felt a little half-baked. The new eight-speed automatic's shifting logic and quality drew criticism, and because the new engine was only available with front-wheel drive that year, it suffered torque-steer reminiscent of a turbocharged Chevrolet Cobalt SS. At least all-wheel drive quelled the torque steer in a 2016 test car.

For 2018, Volvo's global best-seller (over 1 million served!) ditches its ancient Ford EUCD/C1-Plus architecture in favor of a chopped and channeled version of the 100 percent Swedish-engineered Scalable Product Architecture (SPA). A little brother to *Motor Trend's* 2016 SUV of the Year, the XC90, the new 2018 Volvo XC60's wheelbase gets bobbed 4.7 inches while track and body widths contract about a half inch compared to the XC90. The weight also is about 285 pounds lighter, when comparing five-seat versions of the two SUVs.

Relative to the old Ford platform, however, the new wheelbase is 3.6 inches longer, the body is 4.3 inches wider, and the track broadens by 0.8 inch in front and 2.8 inches in back. But this SPA's bulk-up regimen trimmed enough fat that the SPA XC60 scales no heavier than

its predecessor. Also gone are the front struts in favor of control arms, and the rear coils for SPA's more compact and lighter-weight composite transverse leaf spring. Air suspension with variable-damping Four-C shocks is newly available on all models of the XC60 for \$1,800.

Powertrain offerings and output ratings match those of the XC90 across the board: T5 AWD (turbo only, 250 hp/258 lb-ft), T6 AWD (supercharger and turbo, 316 hp/295 lb-ft), and T8 eAWD (supercharger, turbo, plus a 10.4-kW-hr battery powering two electric motors, 400 hp/472 lb-ft combined). Other markets will get diesels and less powerful gas engines that we'll never see here, though we can count on a front-drive offering arriving soon. As with the XC90, each of the above is available in Momentum, R-Design, and Inscription trims.





The Pilot Assist system is deliberately designed to discourage any notion of full autonomy.



Tech Highlights

SPINNY SUPERCHARGER

Because a Drive-E supercharger is only used to fill the torque hole that exists before the bigger turbocharger spools up, its pulley-drive ratio is much higher than the ones in the Camaro ZL1 or SRT Hellcat engines—7.0:1 for the Volvo versus 2.6 and 2.4 for the others. That means that at about 3,500 rpm when the electromagnetic clutch disconnects Volvo's Lysholm-type supercharger as the turbo comes online, its twin screws are twirling at 24,000 rpm—considerably faster than the ZL1's Roots-type lobes or the Hellcat's primary screw spin at their respective redlines. Best of all, the little Volvo blower only exerts 9.2 hp of drag on the crankshaft, as opposed to something more like 60–80 hp for the big V-8s at full chat.

It wouldn't be a Volvo product launch without a new safety gizmo or three in the PowerPoint presentation—after all, we're only a few years away from 2020, when Volvo has declared there shall be no more serious injuries or deaths in a new Volvo. In addition to automatically braking when a collision is deemed imminent, the XC60's City Safety system will provide steering assistance via gentle electric power assist and by braking the wheels on the inside of the intended turn. This system works to prevent collisions with vehicles, pedestrians, and large animals at speeds between 30 and 60 mph. From 37 to 87 mph, Oncoming Lane Mitigation steers to prevent accidents with oncoming vehicles if the car wanders over the lane divider.

Those features are standard (along with all the 90-series vehicles' standard safety gear). Buy the \$1,100 Vision package, and the Blind Spot Information system gets similar steering assistance to pull the car back into the lane if it detects oncoming traffic. The driver can always override these assists.

The SPA treatment has worked the kinks out of the interior, upgrading the 2018 XC60 to the same spare, modern



IPAD-ISH Volvo's Sensus screen gets a makeover with a simplified menu structure and bigger fonts. It is flanked by S90-like vents, and it floats above a swathe of driftwood.

Scandinavian design aesthetic that we've enthused about in the 90-series vehicles. Top Inscription trim levels get new gray open-pore driftwood dash and door inlays. But the biggest upgrade is to the Sensus iPad-look vertical touchscreen. We liked the original in the XC90, but after living with it for a year we had suggestions for improvement. Most of these are incorporated for 2018 across the board—simplified menu structure; bigger, clearer fonts; Apple CarPlay and Android Auto smartphone integration; and the addition of new native apps such as Wikilocations, Yelp reviews, Glympse location sharing, Tune-In, Pandora, and Spotify.

Thoughtful touches abound inside, including stowage cubbies for tablets under the outboard rear-seat cushions, remote seat-back releases in the cargo area, an accessory cargo mat with a rubber extension that can temporarily protect the bumper paint and can be unfolded to form a solid carpet surface over the folded seat backs, and a ski pass-through. The XC60 even gets windshield wiper blades plumbed to



THE 2017 PRIUS

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When designing the Prius, the purpose was clear: Build a hybrid that captivates the eye without capturing the wind. One that incorporates a drag-reducing active grille shutter, a built-in spoiler, a lowered hood and aerodynamics to produce a quieter cabin, a more confident drive and a .24 drag coefficient. The Prius not only transforms how efficiency can look, but also how it should feel.





disperse washer fluid to right where it's needed from the rubber blades themselves.

To find out if its driving manners match its good looks, we stretched the legs of a 2018 Volvo XC60 T6 AWD Inscription model with air suspension. In the hills around Barcelona, Spain, we found the latest Swedish sensation acquitted itself admirably. The front control arms do much to lower and straighten out the geometric roll center, and stiffer springs (they're actually about the same rate as the XC90's, but by bearing less weight they behave more stiffly) and a stiffer front anti-roll bar do much to even the keel. The Michelin Latitude Sport 3 tires (size 255/45R20) squealed a bit but gripped like an insurgent politician. Ride quality seemed respectably supple, given the car's more sporting aspirations. The steering is tuned to be much more responsive than the XC90's, just off center. This was appreciated along the twistiest stretches, but it came off as a bit nervous on higher-speed straighter stretches. None of the three steering effort settings did much for road feel, so we left it in the middle setting.

Despite being almost as wide as the



Swedish AWD

BORGWARNER has produced more than 1 million of the Haldex-style AWD systems used by the XC60. The plant that builds them is in Landskrona, Sweden. The system employs a clever centrifugal electro-hydraulic actuator to vary the front/rear torque split between nearly 100/0 and 50/50 without need for an accumulator, a solenoid valve, or a filter.

XC90, the 2018 XC60 has a cockpit that feels more intimate and tidy, thanks to a more steeply raked windshield and side windows that curve in more at the top. That feeling is corroborated by the performance that comes from a 16 percent better weight-to-power ratio and a recalibrated eight-speed automatic with pleasingly quick and astute shifting (especially in Dynamic mode). But there's no escaping the reality that an engine this small with two boost devices is going to feel less creamy than a larger naturally aspirated one. With hundreds fewer pounds to dampen the driver's perception of this, the XC60 feels a bit more jarring than the XC90 when driven aggressively.

We tried out the emergency steering assist by initiating lane changes that could have proven dangerous and felt the system reassuringly tucking us back into the lane. We also appreciated the audible warning that can be set to ding every time the driver strays beyond a defined offset to the posted speed limits, or, more often, every time a posted speed limit drops. It even warns of speed cameras in Europe.

(That functionality is not quite in place in the U.S.) The Pilot Assist system is deliberately designed to discourage any notion of full autonomy. It only tolerates hands off the wheel for a matter of seconds, but it's highly useful when sightseeing or perhaps talking to a passenger while your hands are on the wheel, as it gently helps keep the vehicle centered in the lane.

So how would the 2018 XC60 stack up in a rematch of that Big Test? With all our gripes rectified, T6 AWD performance that would put them all on the trailer, and aggressive pricing (the T5 starts at \$42,495, and the T6 starts at \$45,895 with a panoramic roof, nav, collision warning, and other standard equipment that costs extra on the winning Lexus NX and others), I like the Volvo's chances. The holistic, rejuvenating power of this Scandinavian SPA certainly worked its magic. ■



2018 Volvo XC60

BASE PRICE	\$42,495-\$57,695
VEHICLE LAYOUT	Front-engine, AWD, 5-pass, 4-door SUV
ENGINES	2.0L/250-hp/258-lb-ft turbocharged DOHC 16-valve I-4; 2.0L/316-hp/295-lb-ft supercharged and turbocharged DOHC 16-valve I-4; 2.0L/313-hp/295-lb-ft supercharged and turbocharged DOHC 16-valve I-4 plus 46-hp/111-lb-ft front and 87-hp/177-lb-ft rear electric motors; 400 hp/472 lb-ft comb
TRANSMISSION	8-speed automatic
CURB WEIGHT	3,950-4,600 lb (mfr)
WHEELBASE	112.8 in
L X W X H	184.6 x 78.7 x 65.3-66.9 in
0-60 MPH	4.9-6.4 sec (mfr est)
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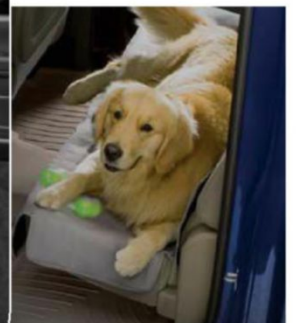


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AUDI'S SPORTY SQ5 AIMS FOR THE WELL-HEELED MILLENNIAL



Words Christian Seabaugh



We millennials have it so easy. Our parents—those (you!) know-it-all baby boomers—grew up making “hard” choices such as which two cars to buy for a young family’s commute and weekend escapes. We, the allegedly entitled Gen Y, typically have the attention span (and budget) to buy just the one car. And whether we have Tesla or Toyota money, we expect our ride to do everything—it must be an economical commuter, a comfortable grand tourer, a light off-roader, and fun to drive.

For the well-heeled among us, the European luxury automakers have gotten quite good at filling this particular

niche. And with the 2018 Audi SQ5, the folks from Ingolstadt prove they know what those wealthier millennial (and younger Gen X) buyers want. Audi says the typical SQ5 owner skews male and is typically around 35 years old. That makes it the youngest demographic in the Audi line despite being more expensive than several other four-rings models. Audi seems to have found the formula that sets millennial hearts ablaze.

Based on the second-gen Q5, Audi’s redesigned SQ5 picks up where the mainstream Q5 leaves off. The old SQ5’s 3.0-liter supercharged V-6 gets replaced with a new 3.0-liter turbocharged V-6, with its single twin-scroll turbo nestled

inside the engine’s vee to mitigate lag. Power is unchanged at 354 hp, but torque increases from 346 to 369 lb-ft. Audi says the new turbo engine is 31 pounds lighter than the old V-6 and is tuned to be more responsive. It’s a big leap over the 252 hp and 273 lb-ft you get from the capable-enough 2.0-liter turbo in the standard Q5—which no longer offers a V-6 option.



YOUNG LOVE



Although the new Q5 gets a seven-speed dual-clutch automatic, for the SQ5 Audi opted to use the old SQ5's quick-shifting eight-speed auto mated to Audi's Quattro all-wheel-drive system—which unlike the pedestrian Q5 is always shuffling power between the front and rear wheels to optimize performance. (Base Q5s get Audi's Quattro Ultra all-wheel-drive system, which defaults to front-wheel drive in dry weather.) Audi also offers up a torque-vectoring mechanical limited-slip differential as part of the \$3,000 S Sport package, giving the SQ5 the capability to send nearly all of its power to a single rear wheel if need be. It can also drift in low-friction situations.

Power is only one part of the equation—the other involves the chassis. Audi was able to give the SQ5, which rides on the Volkswagen Group's MLB Evo platform, a stiffer, more refined setup than before. MLB Evo also allowed Audi to increase the SQ5's wheelbase by 0.7 inch and overall length by about an inch to improve cargo capacity and interior space while keeping the overall curb weight steady at about 4,400 pounds.



The suspension has a fixed ride height of 8.2 inches but features an adaptive damping system that adjusts based on driving conditions and drive mode. The S Sport package also includes a sport adaptive air suspension. The air suspension gives the SQ5 a lower standard ride height for better handling (7.0 inches) and allows the same damping adjustment as the steel-sprung suspension. Its variable ride heights and off-road drive mode allow the air suspension to rise to 9.0 inches and lower to 6.4 inches of ground clearance. A loading level, accessed by pressing a button located in the cargo area, drops the SQ5 down to 5.0 inches of ground clearance, lowering the trunk's



lift-over height to just above knee level. It made loading and unloading easier.

Cruising Canada's Vancouver Island, the SQ5 proves to be quite compelling. The Audi's new sheetmetal, further differentiated from the Q5 with a more aggressive front fascia, spoiler, and rear diffuser, looks sharp against the green Canadian rainforest. The new turbocharged V-6 fires up with a guttural roar but is otherwise docile around town. With peak torque available at 1,370 rpm through 4,500 rpm, the engine never needs to rev to make power, so the eight-speed auto works smoothly in the background to keep the V-6 running efficiently below 2,000 rpm. The auto stop/start system is rough when firing up, but there's no denying its benefits—the 2018 SQ5 is EPA-rated at 19/24/21 mpg city/highway/combined compared to the old SQ5's 17/24/19 rating.

Although easygoing in city traffic, the SQ5's powertrain is quick to wake up with an open road ahead. Firewall the throttle from a standstill, and the SQ5 rockets forward and into triple-digit speeds. Audi estimates 0–60 mph will take the new SQ5 5.1 seconds, but from behind

the wheel I'd have to say the automaker's PR department is attempting to avoid ruffling feathers at Porsche. A 0–60 run in the upper fours is more likely.

I initially expected the new SQ5's engine to lose the charmingly unhinged, instantaneous response of the old supercharged mill, but I'm happy to say I'm wrong. The new SQ5 still knows how to have fun. With all that torque available down low, there's no noticeable turbo lag from the engine. With near instantaneous throttle response, the SQ5 gets moving quickly, and once the tach needle swings past 1,400 rpm, the scenery starts

2018 Audi SQ5

BASE PRICE	\$55,275
VEHICLE LAYOUT	Front-engine, AWD, 5-pass, 4-door SUV
ENGINE	3.0L/354-hp/369-lb-ft turbocharged DOHC 24-valve V-6
TRANSMISSION	8-speed automatic
CURB WEIGHT	4,400 lb (mfr)
WHEELBASE	111.2 in
L X W X H	183.9 x 74.5 x 65.3 in
0-60 MPH	4.7 sec (MT est)
EPA CITY/HWY/COMB FUEL ECON	19/24/21 mpg
ON SALE IN U.S.	Currently



flying by noticeably quicker—the transmission firing off quick upshifts, with a burp from the exhaust for good measure.

The SQ5 also remains a willing dance partner through the corners. With the S Sport package's suspension in its dynamic setting and the rear diff working out back, the SQ5 is light on its toes. It hunkers down through corners, with the diff shuffling power around to get the Audi's nose turned quickly. Although ultimately an improvement over the last SQ5, the new model offers up little in the way of real steering feel or feedback from the road. There's a nice heft to the flat-bottomed steering wheel, but it doesn't have the precision or delicacy of some of its competitors, such as the Porsche Macan, Jaguar F-Pace S, or Mercedes-AMG GLC43. There's an available dynamic steering package that my test vehicle didn't have, which might help improve steering feel.

With the Audi happily humming along at 75 mph on the open highway, I had the chance to take stock of the rest of the SQ5's package. The cabin is quiet. Fit, finish, and materials on my nearly loaded \$65,800 SQ5 Prestige (prices start at \$55,275) are all stellar. The few hard plastics in the cabin are hidden away, and all the touch points, from the metal accents to the optional carbon-fiber trim and Nappa leather, look great. The SQ5 also leads the pack when it comes to technology. Audi's MMI system, when paired with the virtual cockpit instrument cluster, can be easily dismissed as "Google Maps on your instrument cluster." But it puts every conceivable navigation, entertainment, and driving function within a thumb's reach. The driver's hands needn't ever leave the wheel. As for the rest of the occupants, seats front and back are comfortable, with the wheelbase stretch giving the SQ5 an adult-friendly back seat.

Audi says the typical SQ5 buyer purchases this compact crossover for its performance and handling. And with its jack-of-all trades demeanor, the SQ5 might appear to be the default selection for the well-off millennial. But the depth of the competitive set makes the choice more difficult than it appears. Audi has a real challenge on its hands. ■



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Words Chris Walton

eins, zwei, drei,

2017 RS 3: Little package, big boom



Remember that silly little ray gun given to Will Smith's character in *Men in Black*? Its name—Noisy Cricket—belied its apocalyptic power. The Audi RS 3 is the automotive equivalent: tiny package, outsized response.

After years of wistful gazing across the pond and reading glowing reviews with words like *tyre* and *bonnet*, Americans finally get to throttle one of Audi's most anticipated cars. It was worth the wait.

At the heart of the RS 3 is an aluminum 2.5-liter I-5, a culmination of upgrades to Audi's previous iron-block version. Yes, you read right. It's an inline-five, a nod to Audi's Sport Quattro rally-racing glory days. Walter Röhrl would be proud.

Rated at 400 hp, a 10:1 compression ratio and single turbocharger (19.8 psi of boost) get most of the credit for the

161.3-hp-per-liter power density. To put that in perspective, the RS 3 just pips Nissan's twin-turbo Godzilla GT-R at 157.9 hp/L in terms of bragging rights.

Despite its ferocity, it's a smooth-revving pocket monster of a motor. If it were possible to squint your ears, you could almost hear an R8's V-10, especially with the optional sport exhaust system. There's some barely noticeable initial lag as the turbo spools up, but from 1,700 to 5,850 rpm, there's a tabletop-straight line of a constant 354 lb-ft of torque. Unlike some high-output turbo-fours, power isn't as peaky and doesn't seem to wane

at the 7,200-rpm rev limiter. It feels every bit a 400-horsepower engine above and below the 5,850-rpm peak output.

The standard seven-speed double-clutch automatic transmission shifts seamlessly in Drive. Sport Drive's performance logic and manual mode's response time are about as good as it gets. It belches and pops with every wide-open throttle upshift. We only wish Audi had spent more money on the plasticky steering wheel-mounted shift paddles.

Audi conservatively claims that with the car's standard launch control, the RS 3 will accelerate from 0 to 60 mph in 3.9 seconds. Pshaw! We've clocked an Audi S3 (11.7 pounds/hp) at 4.4 seconds, so we're going to say the RS 3 (8.6 pounds/hp est) will do the deed in 3.8 seconds or better.

One of the biggest benefits of Audi's switch to an aluminum engine is the 57-pound weight savings it chops off the nose. This makes the steering rack's quick





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14.6:1 overall ratio very alert and responsive. Move the wheel 0.5 inch from center, and the RS 3 goes there, right now.

As with the best systems, the ratio quickens the more the wheel is turned. Our drive route had mountain-pass corners of varying speeds. In the quick ones, the car felt dead steady and held a line without adjusting the steering input.

If we wanted to tighten the line, we bled throttle. Widen the arc, add throttle.

Part of this responsiveness is due to torque vectoring with brakes. The other part is damn good suspension/steering/driveline calibration and obvious integration. At the limit in the slower corners, there is a hint of gentle understeer. However, after selecting Dynamic drive

mode (affecting throttle, transmission, all-wheel drive, and suspension, with RS-specific sport stability control), a momentary lift off the throttle tucked in the nose and even kicked out the tail.

As any rally fan knows, the next step is to apply a generous amount of throttle to allow the all-wheel-drive system to do its thing. The Haldex clutch-based system is noticeably rear biased and allows the RS 3 to hold a slight slip angle quite nicely—even more noticeably with ESP fully defeated—but there is always a huge amount of control available. We found the RS 3 is not merely set up for slippery, slushy trips to the ski slopes, though it would be able to sort that out. Instead, it's primarily tuned to be driven really hard in the dry.

Worth the wait? Certainly. We've been chomping at the bit since 2011 when the previous RS 3 was introduced to the rest of the world. Worth the money? Starting at \$55,875, the RS 3 is about \$5,000 more than a comparably equipped Audi S3 but significantly more capable. This price is right on top of a similarly focused 365-hp 2017 BMW M2 when equipped with a double-clutch automated-manual transmission. The RS 3 will be a bit more expensive than a 375-hp Mercedes-AMG CLA45 4Matic, which feels far less cohesive a package than the RS 3.

There's an overall coherence and competence baked into the RS 3. There's even something to be said for the stealthy sleeper sedan look, but we wish the Audi looked as badass as it performs. Still, in this class, the RS 3 has few analogues. That's what makes it special. It's one of those once-in-a-decade performance cars enthusiasts will talk about for a while.





2018 Audi S4 sedan and S5 coupe: S is for smooove

Because they share the B9 platform, it's tempting to assume the five-passenger S4 sedan and four-passenger S5 coupe are merely four- and two-door versions of the same car. A quick glance at the specs shows a 2.4-inch variance in wheelbase, 2.1 inches in length (the S4 is longer), and small differences in width and height (the S5 is slightly wider and about an inch lower). As expected, the sedan has a 1.3- and 3.0-inch advantage in rear head- and legroom over the coupe. Plus, its trunk is 1.4 cubic feet larger than the coupe's.

Because they are intended to be above-premium, sport-oriented cars, the S4/S5 have no front-drive versions—the all-wheel-drive system is biased 40/60 front to rear. For these S models, Audi excluded the usual base trim level and only offered Premium Plus and Prestige. Our testers, both Prestige variants with the same options, included MMI Navigation Plus, a color head-up display, and a top-view camera system, among other extras.

A re-engineered 3.0-liter V-6 with an



DIGITAL HELM
Both cars offer Audi's reconfigurable virtual cockpit instrument panel, which supports Google Earth mapping or a constellation of displays/gauges.



CLASSIC The Audi S5's Coke-bottle shape that once rocked our world now looks a bit restrained, but it's still sophisticated.



eight-speed automatic is the only drivetrain combination available. There weren't enough takers for a manual transmission last time, so blame your my-commute-sucks-with-a-stick-shift neighbors. Rest assured, the new eight-speed automatic shifts with the same quickness and seamlessness as the previous seven-speed twin-clutch. It also performs the same throttle-blipping matched-rev downshifts with ease.

Displacing the same 3.0 liters as the supercharged engine did before, the new V-6 opts for the so-called hot-V configuration, where intake is on the outer portion of the engine and the exhaust manifolds feed the single twin-scroll turbocharger that nests inside. The result is output that increases by 21 hp and 44 lb-ft of torque. Audi claims a 4.4-second 0-60 time, but we already clocked the outgoing supercharged S4 with that very acceleration, outrunning the beloved V-8-powered S5 from 2008-2012. We're betting the 2018 S4/S5 Quattros will reduce the time to 4.2 seconds.

Quick as they might prove later in testing, the new S4/S5 Quattros' acceleration is not explosive the way the recent RS 3 is. Instead, speed piles on in that sneaky "Whoops! I'm going 80?" sort of way. Nevertheless, fuel economy has improved. The previous S4/S5 earned 18/28/21 mpg city/highway/combined. The new turbo eight-speeds get 21/30/24 mpg ratings from the EPA.

The S4 and S5 ride on the same multi-link front/rear suspensions, and our test cars wore optional 19-inch wheels. They also featured the S Sport package, which includes adaptive suspension, red brake calipers clenching standard 13.8-/13.0-inch vented discs, and an electronically controlled rear differential that actively shifts torque between the rear wheels.

The cars also featured Audi's optional dynamic steering systems, and although neither gave us a sense through our fingers of how much work the front tires



The S4 and S5 are no longer benign placeholders. They threaten the best in the class.

were doing to turn the car, neither was unpredictable as road speed varied. At speeds that would get the notice of the local constabulary, both felt planted yet eager without feeling heavy. The electronic rear differential was quick to respond, routing power to the outside wheel to help point the cars through corners. It also puts the power down on exit. Mat the throttle on the way out, and the car simply obeys the driver's will.

And unlike the RS 3, there's no tail-out rally driving to be done. It's all precision without a need for correction. The positive spin says this allows a driver to pay attention to a chosen line or avoid road kill, which we did. The S4/S5's optional multivalve dampers have distinct ride qualities between Dynamic and Comfort modes, and Automatic mode doesn't get flummoxed by much.

On price, the S4 and S5 Quattros land between the BMW 340i/440i xDrive

and the Mercedes-AMG C43 4Matic. Undercutting them is the Cadillac ATS-4. In terms of straight-line performance, interior sophistication, driver engagement, and overall confidence, the Audi and Mercedes are well matched. Even if the BMW could manage to maintain pace on a twisty road, it feels older, heavier, and ponderous. The Cadillac ATS V-6 has a world-class chassis, but it lacks a turbo, so it wouldn't likely rise to the occasion where the air gets thin.

The 2018 Audi S4 and S5 Quattros have added a new level of interior, exterior, and driving sophistication to what were already competent—if a little bland—cars. They're no longer benign placeholders. They're finally threatening the best in the performance class and have perhaps even set new benchmarks in several categories.

Audi is cranking out some of the best-looking, best-equipped, and most engaging hardware. It knows how to create both consumer-friendly sedans at the entry-luxury level and full-on sports cars at the exotic end. These enthusiast-oriented examples prove Audi has filled the sporty middle range with attractively priced, muscularly powered, and ambitiously poised newcomers. ■

AUDI IN RED Who doesn't love a red leather interior? With the S4 and S5, Audi's reputation for interior quality and sophistication is intact.



SPECS	2017 Audi RS 3	2018 Audi S4	2018 Audi S5 Coupe
BASE PRICE	\$55,875	\$51,875	\$55,575
VEHICLE LAYOUT	Front-engine, AWD, 5-pass, 4-door sedan	Front-engine, AWD, 5-pass, 4-door sedan	Front-engine, AWD, 4-pass, 2-door coupe
ENGINE	2.5L/400-hp/354-lb-ft turbocharged DOHC 20-valve I-5	3.0L/354-hp/369-lb-ft turbocharged DOHC 24-valve V-6	3.0L/354-hp/369-lb-ft turbocharged DOHC 24-valve V-6
TRANSMISSION	7-speed twin-clutch auto	8-speed automatic	8-speed automatic
CURB WEIGHT	3,450 lb (MT est)	3,850 lb (mfr)	3,850 (mfr)
WHEELBASE	103.6 in	111.2 in	108.8 in
L X W X H	176.3 x 70.9 x 55.1 in	186.8 x 72.5 x 55.3 in	184.7 x 72.7 x 53.9 in
0-60 MPH	3.9 sec (mfr est)	4.4 sec (mfr est)	4.4 sec (mfr est)
EPA CITY/HWY/COMB FUEL ECON	19/26/22 mpg (MT est)	21/30/24 mpg	21/30/24 mpg
ENERGY CONSUMPTION, CITY/HWY	177/130 kW-hrs/100 miles (MT est)	160/112 kW-hrs/100 miles	160/112 kW-hrs/100 miles
CO2 EMISSIONS, COMB	0.86 lb/mile (MT est)	0.80 lb/mile	0.80 lb/mile
ON SALE IN U.S.	Currently	Currently	Currently

They might be the two most impressive supercar debuts in recent memory: the **Ford GT** and McLaren 720S. Pavement-rippling acceleration, obscene levels of confidence-inspiring grip, and the apocalyptic racket they make at full throttle. So which one is better? Angus MacKenzie drove them back to back in the same week. His observations follow.



TEACHER'S

GETTING SCHOOLED BY A 710-HP SUPERCAR



AIR FORCE
Both the McLaren 720S and Ford GT (left) were designed to prioritize aerodynamic efficiency.

Words Angus MacKenzie

PET



Driving, insist the folks at McLaren, is a pastime that should be invested in and improved. And they're true

to their word: Invest \$285,794 in the 2018 McLaren 720S, and you'll probably find yourself driving smoother and faster than you ever have before, both on the track and on your favorite deserted back road.

This new McLaren is as scintillatingly quick as you'd expect a 710-hp supercar to be. But with all that power comes a chassis that both flatters and encourages drivers, regardless of their ability behind the wheel. Push yourself, and the 720S responds. More important, though, it supports, as well. It's like the gifted teacher who brings out the best in every student.

McLaren says 91 percent of the 720S' parts are new, though the 4.0-liter twin-turbo V-8 mounted amidships is an evolution of the 3.8-liter engine that powered 2011's MP4-12C—progenitor of the company's current sports car lineup. The basic vehicle concept is similar, too. The 720S is built around a carbon-fiber tub that is the attachment point for a computer-controlled active suspension.

The aggressively cab-forward exterior design is driven by aerodynamics. Air is directed over the top of the front fenders and into two deep channels on either side of the cockpit. Those channels lead to two radiators mounted ahead of the rear wheels. The channels then sweep around the C-pillars, where the air flowing through them helps extract heated air. Up front, where most supercars have faired-in headlights, the 720S has two large vents that funnel air through radiators mounted just ahead of the front wheels, and the headlights are mounted vertically within the vents. This design element polarized opinion when the 720S was unveiled. In real life, it works, functionally and visually.

Now dubbed M840T, the 720S' engine features a longer stroke, new twin-scroll turbochargers with low-inertia titanium/aluminum alloy turbines, shortened intake runners, and an engine-calibration strategy that keeps the turbochargers spinning as much as possible, with the help of actively controlled wastegates. The aim was more power, more torque, and, crucially, more precise throttle response than in the 650S or 675LT.

AT THE REAR The full-width wing deploys at a 30-degree angle to deliver extra downforce at speed; it flips to 80 degrees to act as an air brake and help stabilize the rear of the car under heavy braking. Just ahead of the wing, right at the corners of the rear fenders, are the engine air intakes, which feed into air boxes that are also structural elements supporting the fenders.



And man, does the revamped V-8 deliver. All 710 ponies (or 720 metric ones, hence the name) are present and correct at 7,000 rpm, and peak torque of 568 lb-ft arrives between 5,500 and 6,500 rpm. With all the action happening much further up the rev range than is typical for high-performance 4.0-liter twin-turbo V-8s, the 720S' engine almost feels naturally aspirated, the surge of acceleration scarcely slowing even as the tach dives deep into the red zone to 8,200 rpm. (By contrast, the Mercedes-AMG GT R's

similar powerplant makes its max torque of 516 lb-ft from just 1,900 rpm.) Yes, the McLaren can feel a little subdued below 3,000 rpm, but so would a naturally aspirated engine with these characteristics.

McLaren says the 720S will accelerate to 60 mph in 2.8 seconds and is half a second faster to 124 mph (7.8 seconds versus 8.3 seconds) than a Ferrari 488. The quarter mile is done and dusted in 10.3 seconds, and claimed top speed is 212 mph. Yet with the suspension and engine/transmission in their default

settings and the seven-speed dual-clutch transmission left to its own devices, the 720S is a pussycat, remarkably tractable and easy to drive around town.

Visibility out of the light, glassy, completely redesigned cabin is excellent—easily the best of any mid-engine supercar—and the standard seats are cossetting and comfortable. Behind the elegant, thin-rimmed steering wheel is a new digital instrument panel that in Track mode flips flat and tucks away to leave just a thin screen on its top edge displaying the selected gear, engine rpm, and speed. Drive, neutral, or reverse are selected via toggles on a flying buttress gracefully arching downward from the base of the central infotainment screen.

In its default mode, ride and handling skew more toward the track-optimized 675LT than the 650S. Comfort mode does exactly what it says on the tin, allowing the suspension to soak up lumps and bumps and smoothly short-shifting the transmission. With less tire noise than a Porsche 911, subdued engine noise at part throttle, and a useful 12.7 cubic feet of luggage space—5.3 cubic feet up front and 7.4 under the rear glass—the 720S makes a surprising grand tourer.

Sport and Track modes progressively stiffen the effective damping and

WELCOME Wide-opening doors and roof cutouts make entry and egress easy. The roof is an integral part of the carbon-fiber tub, and ultra-thin pillars mean the cabin feels light and airy.



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spring rates, cinching the body down on the suspension. They also sharpen the engine and transmission responses. The serene body control that has become a trademark of actively suspended McLarens is evident in Sport mode, even on rough-and-tumble back roads. The Sport engine/transmission calibration is less convincing, however, delivering thumping gearshifts and a snap-crackle-pop from the exhaust that McLaren engineers admit has more to do with impressing customers than going faster.

The hot setup for rapid road progress is to leave the suspension in either Comfort or Sport—depending on how rough the road is—switch the engine/transmission setting to Track, and shift manually. Thus configured, the 720S is blisteringly quick, effortlessly telescoping

time and space no matter how twisty the tarmac. The engine's thrust is simply epic, and the lightning-quick gearshifts in Track mode are virtually seamless. The front end grips like a leech, and the rear tracks faithfully no matter how much the pavement heaves.

But it's on the track, with the optional Pirelli P Zero Corsa tires fitted, that the McLaren 720S delivers a master class in making you a better driver. In addition to increased downforce, the 720S has more mechanical grip than the 650S. It arrows through high-speed sweepers, and its stability under heavy braking is truly

ELEGANT INTERIOR The digital instrument panel in the 2018 McLaren 720S flips down in Track mode, leaving only a thin screen displaying vital info (below left). The infotainment screen, engine/transmission and suspension mode selectors, and other minor controls are angled toward the driver.

impressive. But for all that, the chassis is superbly responsive to steering and throttle inputs. Especially throttle inputs.

"Throttle response—both on and off throttle—is equally important," says Chris Goodwin, McLaren's chief test driver and the man who honed the 720S' dynamics. The 720S' engine calibration delivers such impressively equal tip-in and tip-out—basically, adding and subtracting torque to the rear tires—that you can adjust the balance of the car, tightening the radius of the turn on entry or drifting it wide on the exit, with remarkable precision. This chassis makes its intentions crystal clear and follows through with confidence-inspiring consistency. When combined with McLaren's Variable Drift Control—its version of adjustable traction control—you can learn to corner the 720S like a pro racer.

The 720S is the clearest expression yet of McLaren's approach to the art of the supercar. By overlaying key performance fundamentals—low weight, high responsiveness, balance, grip, and power—with electronic controls that are defeatable as your confidence grows, McLaren has allowed drivers to discover the purest possible driving experience. ■



2018 McLaren 720S

BASE PRICE	\$285,794
VEHICLE LAYOUT	Mid-engine, RWD, 2-pass, 2-door hatchback
ENGINE	4.0L/710-hp/568-lb/ft twin-turbo DOHC 32-valve V-8
TRANSMISSION	7-speed twin-clutch auto
CURB WEIGHT	3,100 lb (MT est)
WHEELBASE	105.1 in
L X W X H	178.9 x 81.0 x 47.1 in
0-60 MPH	2.8 sec (mfr est)
EPA CITY/HWY/COMB FUEL ECON	Not yet rated
ON SALE IN U.S.	Currently

DIAL UP Engine/transmission and suspension can be independently switched between Comfort, Sport and Track modes.





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Tread compound is molded into an asymmetric pattern with a focus on durability. The stiff center block design improves straight-line stability and dry traction, while the zigzag sipes provide biting edges for confident grip in wet and wintry conditions.

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Lights flicker across the top of the steering wheel as the exhaust note builds to a full-throated bellow. Green, red, blue ... shift now! Fingertips snick the right-hand paddle, a delicate, precise motion that barely interrupts the surge of acceleration. Corner! Left foot hard on the brakes, the carbon-ceramic rotors instantly turning forward motion into heat energy. Snick, snick on the left-hand paddle, a corresponding braap-braap from the engine as the dual-clutch transmission smoothly drops two gears. Now the magic happens.

The front tires respond the split second the steering wheel is moved off center. Left, right, left ... The low-slung coupe dances through the ess-bend with impossible speed. It's light on its feet yet preternaturally calm, a prima ballerina in carbon fiber and aluminum. Squeeze the gas, feel the precise moment the rear tires reach the limit of adhesion, and slow-hand opposite lock to maintain a gentle drift on the exit of the last left-hander. Such agility ... such precision! The calm, concise, constant dialogue with the chassis through your fingers and toes and the seat of your pants: This is a supercar like no other. This is a Ford like no other.

That's right. A Ford. The 2017 Ford GT is a remarkable car, not just for what it does but also for what it is.



THE RIGHT STUFF

FORD BUILDS
A RACE CAR
FOR THE ROAD



Ford calls the GT “a race car for the road,” and for once that’s not marketing hype. The GT was born from a fierce desire among a small cadre of enthusiasts in Dearborn to race a car at Le Mans in 2016, and—hopefully—celebrate the 50th anniversary of Ford’s epic 1-2-3 finish in the legendary 24 Hour race with another victory over Ferrari, although this time in the GTE class for production cars.

Key goals for the development team were low weight, high aerodynamic efficiency, and big horsepower. The GT is almost entirely made from carbon fiber and aluminum. The carbon tub narrows toward the rear, and driver and passenger sit shoulder to shoulder on seats fixed to the floor—the steering wheel and pedals move instead. The carbon-fiber dash is a structural part of the tub. The instrument panel is digital, and most minor controls are on the race car–style steering wheel.

The suspension resembles that of an F1 car, coil and torsion-bar springs that work in series, with damping courtesy



of Multimatic DSSV spool-valve shocks. Underneath is a race car–style aerodynamic floor, and at the rear a wing deploys to increase downforce and changes its shape.

But can you really have a supercar with a six-cylinder engine? One exhilarating thrash along a winding road, one hot lap of any racetrack, one searing full-throttle charge to V-max answers that question. With 647 hp at 6,250 rpm and 550 lb-ft of torque at 5,900 rpm, the GT’s 3.5-liter EcoBoost V-6—which shares 60 percent of its parts with the new Ford Raptor engine—has more power than a Ferrari 458 and more torque than a McLaren 675LT, and they’re both powered by V-8s.

In Normal mode, the engine is as docile and tractable around town as it is in an F-150. Switch to Sport or Track mode, however, activating the anti-lag system

that reduces time-to-torque at 3,000 rpm from 1.2 seconds to 0.7 second, and the beast within awakes. Nail the gas, and the engine’s dreary part-throttle drone explodes into a gut-wrenching wall of sound as you’re shoved back into the seat.

Ford won’t say much about the anti-lag system, but all you need to know is that it works: Throttle response is instant, urgent, incandescent, feeding precise measures of torque to the rear tires. In V-max mode, where active aerodynamics are configured to deliver minimal drag and the stability control is at DEFCON 1 to compensate for the lack of downforce, Ford says the GT will hit 216 mph.

So forget cylinder count. Rejoice in the fact that not only does the GT have the most powerful EcoBoost engine built, it also has one of the most powerful engines Ford has ever put into a street-legal car.

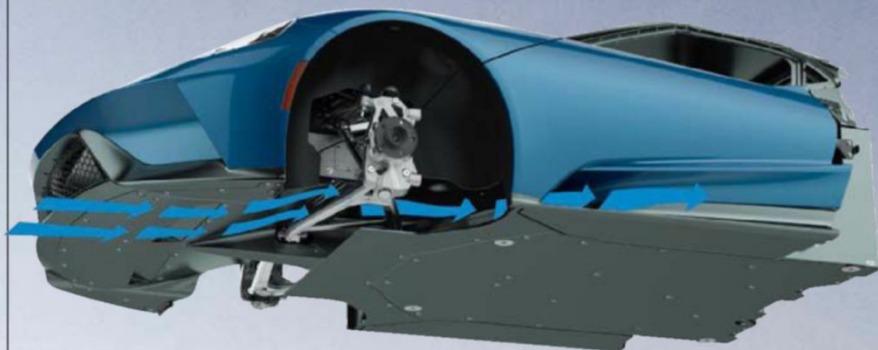
The powertrain is impressive, but the chassis is even better. Because it’s so low and so light—the claimed dry weight is 3,050 pounds—the GT is stupendously agile on the change of direction, arguably



Active rear wing As the rear wing deploys, electric motors change the foil shape underneath and extend a small Gurney flap along the trailing edge. The result is a 14 percent change in efficiency—14 percent more downforce with the wing in the air or 14 percent less drag when it’s stowed.



READY TO RACE TRACK TECH IN THE FORD GT



Aerodynamic floor The race car-style “keel” enables air to pass into the wheelwells, helping the airfoil-shaped front section of the floor generate downforce. With the rear wing stowed, flaps at the front open to guide air through floor vents, reducing downforce and balancing the chassis.



Carbon-fiber tub and integrated rollcage

The central structure of the GT is a carbon-fiber tub made from more than 40 parts. The instrument panel is a structural element, and atop the tub is a tubular structure that not only supports the roof but is also a race-approved rollcage.

Pushrod suspension A remote coil spring (green) works in series with a torsion bar spring (green), compressed by a rocker actuated by the pushrod coming off the lower control arm. A secondary rocker actuates the remote-mounted DSSV shocks (blue). In Track mode the high-pressure hydraulic system compresses the coil spring, dropping the ride height from 4.7 inches down to 2.7 inches, relegating all springing duties to the torsion bar.



CHRIS SVENSSON THE SECRET BUSINESS OF MAKING OF AN ALL- AMERICAN SUPERCAR



Chris Svensson began his career with Ford as an exterior designer at the company's design studio in Cologne, Germany, and has worked on products as diverse as the Ka, the Mustang, and the Falcon. He

describes the opportunity to work on the new GT as “a once-in-a-lifetime experience.”

“We started with three themes for how we could take the GT in different directions. We looked at the iconic 1965 GT40 and identified key elements such as the waterline across the nose that bites back, the squared-off headlights, the nostrils, the wraparound glass that culminates in an intake at the back, the circular taillights on a horizontal plane with the exhausts in the middle—key elements we thought we’d love to put in the car.

“The second theme was performance efficiency. We were designing a race car at the same time, so we were inspired by a lot of things that were going on in current race car design—LMPs and things like that. We looked at how we could make it much more aero efficient than anything else on the road today.

“The third direction was a pure styling exercise, a pure exercise in beauty—modern seduction. We looked at Lamborghinis, Ferraris, and a beautiful Maserati show car—the Birdcage—that had just come out a few years before. We concentrated on beautiful forms. When we had the first review with Raj [Nair, Ford product development chief] he said ‘you’re going to take all three and wrap them up in a single entity.’

“At one point we had two full-sized clay models, each with a different nose and a different style of side vent to take air out from under the car. Design preferred the one with a big vent high on the side, behind front wheel; it was more visually stimulating. But when we tested it in the wind tunnel, we found the low outlet worked much more efficiently. So we made a conscious decision to go with the solution we knew would perform. But the front end of the car with the high side vent ended up on the car with the low side vent, which became the production design. There was a lot of swapping around going on.

“Carbon fiber allowed the design team to do forms and shapes they could never press in steel, such as the flying buttresses. We could really challenge how we created the form for this car, but we still had to manufacture it, we still had to put it together, we still had to paint it. This is one of the most complex forms we have ever had to build.” **AM**

better than any supercar in the business. It's instantaneously responsive to steering inputs, yet it remains beautifully balanced and composed on the follow-through. The GT might be a 647-hp, 216-mph mid-engine supercar, but it feels as playful and trustworthy as a Miata.

All this chassis magic is accomplished with surprisingly little electronic trickery—at least by 21st-century supercar standards. In Normal mode the ride height is set at 4.7 inches, the rear wing deploys at 90 mph, and an additional Comfort suspension setting is available to further calm the ride on rough roads. Selecting Sport mode activates the anti-lag system and reduces

the traction control system's level of intervention. It also allows the rear wing to deploy at 70 mph. Body motions are tautly controlled, but the GT rides remarkably well for a light car on low-profile tires, with much less noise and impact harshness than a Porsche 911 GT3.

Track mode—which can only be selected while the car is stationary—is the GT's party trick. The car instantly drops 2 inches as the coil springs are compressed by a high-pressure hydraulic system that also controls the steering, transmission, and rear wing, which remains fully deployed. The spring rate is now stiffer, courtesy of the short torsion bars. Even so, on the track the GT remains unfazed by mid-corner lumps and bumps, and it happily rides the curbs through corners. Stability through fast corners and under heavy braking is superb, thanks to the active aero.

The 2017 Ford GT is the real deal. Just like the original GT40, it was actually designed to win at Le Mans. That means some compromises. The V-6 drones horribly at cruising speeds. Owners with generous proportions will find the cabin tight. The execution of the carbon-fiber panels and parts is workmanlike rather than dazzlingly perfect, as in a Bugatti or a Pagani. And though it has satellite navigation, air conditioning, and cruise control, it's not a car for cruising from sea to shining sea.

But none of that matters because the 2017 Ford GT delivers an utterly unique driving experience. It's loud and unfiltered, agile and precise, fast in a straight line, and quicksilver through the corners. It is not, like track-rat versions of Porsches and Ferraris and Vipers, a road car with racing hardware bolted on. The GT truly is a racing car you can drive on the road. ■



DIAL UP Five drive modes are accessed via this controller: Normal, Sport, Track, Wet, and V-max (which allows the GT to hit its 216-mph top speed).

2017 Ford GT

BASE PRICE	\$450,000 (est)
VEHICLE LAYOUT	Mid-engine, RWD, 2-pass, 2-door coupe
ENGINE	3.5L/647-hp/550-lb/ft DOHC 24-valve twin-turbo V-6
TRANSMISSION	7-speed twin-clutch auto
CURB WEIGHT	3,200 lb (est)
WHEELBASE	106.7 in
L X W X H	187.5 x 78.9 x 41.7-43.7 in
0-60 MPH	2.8 sec (MT est)
EPA CITY/HWY/COMB FUEL ECON	11/18/14 mpg
ENERGY CONSUMPTION	306/187 kW-hrs/100 miles
CO2 EMISSIONS, COMB	1.46 lb/mile
ON SALE IN U.S.	Currently



FORD GT VS McLAREN 720S TWO STUNNING SUPERCARS. WHICH IS BETTER?

Synchronicity. In 1966 Bruce McLaren was at the wheel of the GT40 that led Ford's historic 1-2-3 crushing of Ferrari at Le Mans. More than half a century later we've driven, within days of each other, the GT40's spiritual successor and the newest supercar from the company created by the Formula 1 team McLaren founded.

Both the Ford GT and the McLaren 720S are built around ultra-stiff carbon-fiber tubs with sophisticated suspensions. Both have carbon-fiber body panels, twin-turbo engines, seven-speed dual-clutch transmissions, active aerodynamics, and selectable drive modes. Both are brilliant to drive.

Which is better? Engine: McLaren wins. The 710-hp twin-turbo V-8 delivers monster thrust and sounds epic. Styling: Ford wins. The GT looks like no other mid-engine supercar; those flying buttresses will influence a generation of young designers.

In road trim the GT is 3.4 inches lower than the 720S, and in Track mode it's a whopping 5.4 inches. Stepping into the McLaren after driving the Ford is like climbing into an SUV. The low-slung GT feels more agile than the 720S on the track, especially through a series of ess-bends.

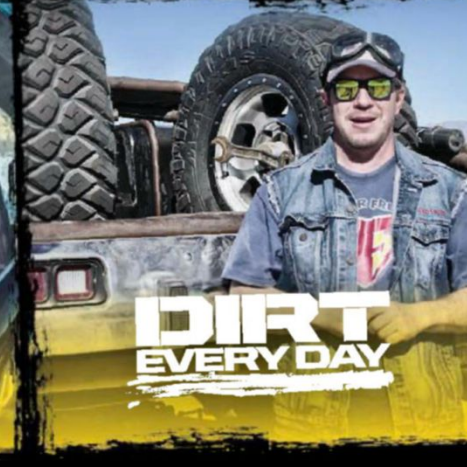
Both reward precise driving. In the GT, it's on corner entry, where it's easy to overwhelm the front tires if you come in too hot. In the 720S, it's mid-corner, where even tiny throttle inputs significantly alter the car's attitude. For 200-mph mid-engine supercars, both have delightfully benign and predictable handling. Out on the road, both cars boast a compliant ride, but the McLaren has superior noise suppression, more comfortable seats, and superb all-round visibility.

The winner? The Ford GT's racing heritage is obvious, and indeed it is the whole point of the car. But the McLaren 720S is the better all-round supercar, more equally accomplished on both road and track. **AM**



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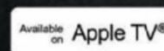
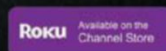
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GARAGE

Words Motor Trend Editors



ARRIVAL 2017 BMW 530i Mark Rechtin



"Is a BMW with a turbo-four worth 72 grand? If its performance equals an I-6, then the 530i makes a convincing argument."

EPA CITY/HWY/COMB FUEL ECON
24/34/27 MPG **BASE PRICE** \$52,195
PRICE AS TESTED \$72,135

In Europe, large cars with small, turbocharged engines have been around forever. That's because there's not much call for big, torque-heavy engines for stoplight-to-stoplight drag racing; however, brisk-enough acceleration combined with strong highway fuel economy plays well in the *autobahn* culture.

That's not the case in America, where there is no replacement for displacement. And until a few years ago, buying a 5 Series sedan meant instant admittance into the straight-six club. But in 2012, BMW tested the waters with a turbo-four in the 5 Series.

Interestingly, Americans took to a small-engine 5 quickly, with the 2.0-liter turbo 528i accounting for half of 5 Series sales. That's mostly because the new turbo-four had as much horsepower as the old inline-six it replaced. (BMW also added a more powerful inline-six, at a significant premium.)

With the updated 2017 530i, BMW has launched a revised 2.0-liter direct-injected twin-scroll turbo-four with variable camshaft and valve timing, rated at 248 hp (up from 240) and mated to ZF's 8HP50 eight-speed automatic transmission.

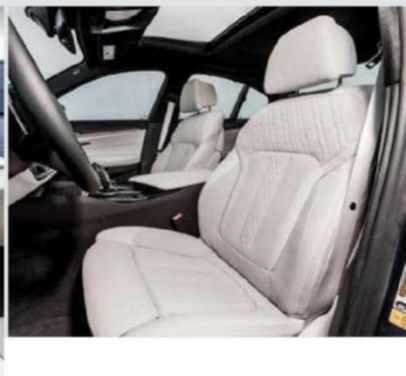
We took delivery of our Mediterranean Blue on Ivory White leather edition in April. Our Bimmer came loaded, meaning its \$52,195 base price had rocketed to \$72,135. Key contributors to our 530i's \$20,000 in options were the Premium package (\$2,300, which gets you keyless access, wireless charging, a Wi-Fi hot spot, and SiriusXM satellite radio); \$1,800 for the Driver Assistance package (a rearview camera, head-up display, and parking sensors); \$1,400 for blind-spot detection, daytime pedestrian protection, frontal collision warning with city collision mitigation, lane departure warning, and rear cross-traffic alert; and \$1,700 for Traffic Jam Assistant (low-speed stop-and-go cruise control),

lane keeping assistance with side collision avoidance, active cruise control, lane departure warning, frontal collision warning, city collision mitigation, and yet more pedestrian protection.

In addition, our 530i came with \$1,050 LED headlights that follow the turning arc of the steering wheel, \$1,000 Nappa leather seats—bumped by an additional \$1,600 for heated and cooled perforations and 20-way adjustability—\$1,150 for rear-wheel steering, \$1,000 for dynamic damper control that adjusts suspension settings 400 times a second, an \$800 cold weather package with heated front and rear seats and a heated steering wheel, and a 600-watt Harman Kardon stereo upgrade for \$800.

Wait, we're not done yet. There was a slew of other options (power trunk, M Sport brakes, 19-inch alloy wheels, upgraded upholstery on the dashboard, soft-close doors, piano-black ceramic controls, a power rear sunshade) that each chimed the cash register in the \$500 to \$650 range.

What if we wanted more power? The bump from a base 530i to a 540i (which gets you a 335-hp twin-



UPDATE CHEVROLET BOLT EV	CHEVROLET COLORADO Z71 DURAMAX	DODGE CHARGER SRT HELLCAT	UPDATE DODGE DURANGO GT	UPDATE HONDA CIVIC TOURING	HONDA HR-V EX	ARRIVAL JEEP RENEGADE	KIA SPORTAGE EX AWD
							
							
LAND ROVER RANGE ROVER SPORT HSE TD6	MAZDA CX-3 AWD	MINI COOPER S CLUBMAN ALL4	NISSAN TITAN XD PRO-4X DIESEL UPDATE	SUBARU LEGACY SPORT	TOYOTA MIRAI UPDATE	VOLKSWAGEN GOLF SPORTSWAGEN 1.8T	VOLVO XC90 AWD

RIDE ALONG FOR UPDATES ON OUR LONG-TERM FLEET

SPECS 2017 BMW 530i



PAUL LAGUETTE

CO2 emissions 0.70 lb/mile
(at vehicle)



MT figure eight
25.9 sec @ 0.69 g (avg)

6.3 sec
0-60 mph

14.8 sec @ 94.6 mph
Quarter mile

103 ft
Braking distance, 60-0 mph

Vehicle Layout Front-engine, RWD, 5-pass, 4-door sedan
Engine 2.0L/248-hp/258-lb-ft turbocharged DOHC 16-valve I-4
Transmission 8-speed automatic **Lateral Acceleration** 0.92 g (avg)
Curb Weight (F/R Dist) 3,886 lb (51/49%)
Energy Cons, City/Hwy 140/99 kW-hrs/100 miles

turbo straight-six) requires \$57,445 before options start stacking up. But we felt the turbo-four would be sufficient for our needs in traffic-choked Los Angeles. Our sunny climes also meant selecting standard rear-drive, rather than BMW's xDrive option that powers all four wheels.

Dimensionally, the 5 has grown 0.2 inch in wheelbase (to 117.1 inches) while gaining 1.2 inches in overall length (to 194.6). Front track remains the same, at 63.0 inches, and rear track decreases by 0.2 inch to 63.9 inches. Width increases by 0.3 inches to 63.0. Impressively, BMW claims to have leached 68 pounds from its base curb weight, mostly by optimizing the body-in-white and various suspension pieces through the use of aluminum and ultra-high-strength steels.

How all this lightweighting and added horsepower affects the 530i's performance will be analyzed in our first update. Come back in a month for a full dissection of the data.



The 19-inch alloy wheels are one of many options that drove the base price of our BMW 530i upward by \$20,000.



2016 Toyota Mirai Kelly Pleskot



"Living with the Mirai has felt surprisingly normal despite the frosty fueling experience. My main hang-up remains the range readout."

Service life / 4 mo/6,964 mi
Avg CO2 / 0.00 lb/mi (at vehicle)
Energy cons / 51/51 kW-hrs/100 mi (gas equiv)
Unresolved problems / None
Maintenance cost / \$0
Normal-wear cost / \$0
Base price / \$58,335 **As tested** / \$58,335

 **EPA FUEL ECON 67 MPG comb.**

A few months have passed since we took delivery of our Toyota Mirai, and the sedan has visited the dealership twice for servicing. (We took over the Mirai with almost 8,000 miles on the odometer, so it's been serviced at 10,000 and 15,000 miles.) Toyota offers free maintenance for three years or 35,000 miles, a more generous deal than the automaker's typical two-year/25,000-mile coverage. Servicing it every 5,000 miles has felt no different than with any "regular" vehicle.

I recently took a 200-mile journey to San Diego to try new fueling stations. The Mirai provided a comfortable ride, and I didn't feel like I had to baby the throttle to go the distance. Still, if you're driving a Mirai, you'll have to fill it up more often than an efficient gas-powered car. My average commute is 56 miles a day, and I have to fill up at least twice per week. My range readout hovers below the 312-mile EPA rating.



The nozzle can be so cold that it's difficult to remove from the vehicle.

Keeping me entertained during my drives is Toyota's Entune system with its 70-inch touchscreen. I've used it plenty, and the screen isn't prone to much smudging. Lower on the center console, there are buttons for seat warming. Because they are so close to the cupholders, I sometimes press them by mistake as I reach for my drink. I also find myself wishing the Mirai had more lighting. With the infotainment screen far away and the instrument gauge not in its usual place right in front of the driver, the left side of the cabin gets dark at night.

Something curious but mostly painful happened while filling up recently. The nozzle unit has a metallic section just above the handle. A few of my fingers froze there, and it hurt pretty badly for a few minutes. The pain didn't go away entirely for hours. Perhaps it's obvious, but you only want to make contact with the fueling nozzle's handle.



Former associate road test editor Benson Kong fills up the Mirai at a hydrogen station in Long Beach.





2017 Chevrolet Bolt EV Scott Evans



"We don't really feel the need to charge the Chevrolet Bolt EV to 100 percent every time, thanks to its 238 miles of range."

Service life / 2 mo/3,098 mi
Avg CO2 / 0.00 lb/mi (at vehicle)
Energy cons / 17.0 kW-hrs/100 mi
Unresolved problems / None
Maintenance cost / \$0
Normal-wear cost / \$0
Base price / \$41,780
As tested / \$43,905



AVERAGE FUEL ECON 198 MPG-E comb.

One of the first five questions about any EV, without fail, has to do with charging.

The longest trip we've made was 205 miles, but on average, we charge about every 80 miles. We typically plug in around 55 percent and pull the plug around 87 percent. When we plug in, the ideal range averages 132 miles, and the predicted range averages 122 miles. Afterward, the ideal range averages 239 miles, and the predicted range averages 195 miles. Average predicted charge time: 5 hours and 15 minutes.

Each charge is only consuming an estimated 24.3 kilowatt-hours of electricity on average. Some

public chargers give detailed receipts. Others don't tell you anything. However, based on metered charging in the *Motor Trend* garage, I've calculated the Bolt consumes 6.86 kW-hrs of electricity per 10 percent of indicated battery charge, allowing me to estimate consumption at any charger. It's just an estimate, though, because the Bolt's battery meter displays in 5 percent increments. From this, I can extrapolate my costs. We've spent \$57.44 on public chargers at an average \$6.38 per charge. *MT* pays between \$0.04 and \$0.07 per kW-hr for electricity at

Charging Update 1 2017 Chevrolet Bolt EV

Odometer	3,193 mi
Avg distance between charges	80.4 mi
Avg pre-charging state of charge	54%
Avg range pre-charge (ideal/predicted)	132/122 mi
Avg energy per charge	24.03 kW-hr
Avg predicted charge time	5h, 12m
Avg post-charging state of charge	87%
Avg range post-charge (ideal/predicted)	239/195 mi
Cost of public charging to date (\$6.38 avg)	\$57.44
Cost of office charging to date (\$1.47 avg)	\$22.02
Cost of home charging to date (\$3.84 avg)	\$7.68
Total charging cost to date	\$87.14

our office. After 15 charges, *MT* has spent between \$16.01 and \$28.02 charging my Bolt, an average of \$1.06 to \$1.86 per charge.

At home, the math is fuzzier. I pay an average standard rate of \$0.16 per kW-hr up to 291 kW-hr per month, \$0.25 per kW-hr from there to 1,164 kW-hr per month, and \$0.31 per kW-hr above that. A full charge at home will cost me \$11.00. With a 176-mile round-trip commute, I'd need to fully charge twice a month, minimum.

For two home charges, I've paid \$7.68. Total, it's cost us about \$87 to go nearly 3,200 miles on 29 charges. Show me another five-passenger vehicle that can fill its tank for \$11 and go 238 miles.



2016 Honda Civic Touring Jason Udy



"Despite its unexpected dealer visit, our long-term Honda Civic has proven enjoyable in daily Los Angeles commuting and on extended road trips."

Service life / 8 mo/17,459 mi
Avg CO2 / 0.60 lb/mi
Energy cons / 105 kW-hrs/100 mi
Unresolved problems / None
Maintenance cost / \$186.49 (2-oil change, inspection, tire rotation)
Normal-wear cost / \$0
Base price / \$27,335 **As tested** / \$27,890



REAL MPG FUEL ECON 33.8 MPG comb.

Although we've enjoyed our Honda Civic Touring during our daily commute and various road trips, we also have to take care of our long-term loaners as if they were our own. With nearly 18,000 miles on the clock, our Civic has had two scheduled service visits and one surprise visit to the dealer.

Rather than a specified mileage oil change intervals, Honda recommends having the scheduled service done when the Maintenance Minder system reads 15 percent of oil life. Our first

scheduled service visit was done with 7,039 miles on the odometer. Total cost of our first service, which included an oil change, a tire rotation, an inspection, and a fluid top-off, came to \$86.86.

Our surprise dealer visit came with just 10,764 miles on the odometer, when our car wouldn't start. Instead a series of error messages flashed across the screen.

Now considered a small midsize sedan by the EPA, the 10th-generation Honda Civic is roomy enough for a family of four—including teenagers.

"Adaptive Cruise Control Problem." "Lane Keeping Assist Problem." "Electric Parking Brake Problem." The list of error messages continued to include the Civic's emissions, brake, brake hold, power steering, vehicle stability assist, hill start assist, collision mitigation, and road departure mitigation systems.

This was the second time our Civic Touring had experienced the issue. The first time it happened was while our Real MPG team had the car. Although they solved the issue by disconnecting the battery to reset the computers, the repeat offense prompted us to have the issue addressed by the dealer.

Three days after the tow truck picked up our car, the dealer told us that our Civic Touring needed a new transmission control module (TCM), according to the error codes (U0101, U0155, and U0038). In addition to replacing the TCM, clearing the diagnostic trouble codes, and reinitializing the sensors, the dealer updated the software in the VSA modulator. The dealer said this was only the second time they have had a new Civic come in for the same issue. We picked up our car a week later and haven't had any starting issues since.

With the Maintenance Minder at just 15 percent of oil life at 12,309 miles, we took our Civic in for its second scheduled service. That oil change, tire rotation, and inspection/fluid top off cost \$99.63.

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ARRIVAL

2017 Jeep Renegade Sport 4x4 Jesse Bishop



"Already we've been asked why we didn't go with the six-speed manual. Answer: We want to test the one most people will buy."

EPA CITY/HWY/COMB FUEL ECON
21/29/24 MPG **BASE PRICE \$20,990**
PRICE AS TESTED \$26,585

Were it not for a rookie dad move, I wouldn't be driving this 2017 Jeep Renegade Sport 4x4. The Jetset Blue Jeep was supposed to spend a year under the care of photographer Brian Vance. But Brian, a newly minted father, didn't account for the space a baby needs. With his child seat installed, the Renegade's front passenger seat was rendered useless for all but the smallest of adults. It seems the compact SUV target market doesn't include families with newborns, so the

Jeep would need a new chaperone. I didn't hesitate when offered the keys to my first long-term.

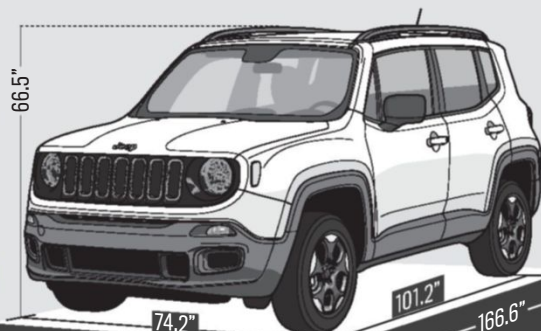
It's a fitting first for me, too. As it just so happened, I had been getting tired of driving my hand-me-down turn-of-the-century Ford Explorer. As is often the case with old cars, things just didn't quite work like they were supposed to anymore. The radio was broken. Duct tape held the center console together. The battery was dying. Had the Renegade not fallen into my lap, I very well could have been looking at buying something new in this red-hot, millennial-targeted segment anyway.


The Renegade is available in one of six trim levels, ranging from the base Sport to the limited edition Desert Hawk. We went with the Sport then added all-wheel drive for a \$2,000 premium. We also upgraded the base 160-hp 1.4-liter turbo-four and six-speed manual drivetrain to a 2.4-liter I-4 with a nine-speed automatic. Doing so requires the addition of the Power and Air group, bringing the total cost of the engine upgrade to \$2,825. We also added the Sport Appearance package (16-inch aluminum wheels, black roof rails, and tinted glass



Vehicle Layout Front-engine, AWD, 5-pass, 4-door SUV
Engine 2.4L/180-hp/175-lb-ft SOHC 16-valve I-4
Transmission 9-speed automatic
Lateral Acceleration 0.77 g (avg)
Curb Weight 3,360 lb (60/40%)
Energy Cons. City/Hwy 160/116 kW-hrs/100 miles

SPECS 2017 Jeep Renegade Sport 4x4



 C02 emissions 0.81 lb/mile	MT figure eight 28.5 sec @ 0.58 g (avg)
9.0 sec 0-60 mph	16.8 sec @ 81.1 mph Quarter mile
	123 ft Braking distance, 60-0 mph



So far, I've just been glad to sit in a car sans scuffs and duct tape. Once the new car smell wears off, I'll have more useful thoughts on the little Renegade's interior.



for \$625), passive entry and remote start (\$205), a 5.0-inch touchscreen display with Uconnect and a rearview camera (\$845), and removable roof panels (\$1,095). All in, our tester goes for \$26,585.

It's been two years since we last went in depth with the Renegade. In a Big Test covering this segment, a Jeep Renegade Latitude—one step up from the Sport—finished third, just behind a Mazda CX-3 and ahead of a Honda HR-V, both of which we've had in our garage already. At the time, the Jeep's balky nine-speed automatic filled us with loathing, but otherwise the Renegade was a strong performer. We'll spend the length of this loan judging how much the transmission calibration has improved and deciding whether the Jeep's pluses outweigh any remaining minuses. We'll also reconsider the Jeep's place in this segment in view of our extended time spent with its two key competitors.

Our Jeep just went through our standard performance and efficiency tests. Its 0–60 time (9.0 seconds), quarter mile (16.8 seconds at 81.1 mph), braking from 60 mph (123 feet) and figure eight (28.5 seconds at 0.58 g) are pretty much within spitting distance of the CX-3 and HR-V we've had in our fleet, and they all feel adequate for me so far. Its 20.9 mpg over the first 2,300 miles, however, does not. (Real MPG testing returned 16.6/30.4/20.9 mpg city/highway/combined, well short of the CX-3

and HR-V.) That near-death Explorer I'm so excited to replace? It offers similar straight-line performance, returns an average mpg close enough to the Renegade's that I don't notice the difference, and has room for multiple babies should I need it.

Perhaps more important than all that, though, I look forward to seeing if sliding into the driver's seat of a brand-new millennial vehicle makes me feel any cooler. I have a bunch of pristine camping gear that could stand to get dirty. Will I drive along the California coastline at night with the removable roof off and an ocean breeze running through my hair? Will I learn to surf?


Or will I be passing the keys to yet another staffer after I, too, find the back seat isn't quite big enough? We have a year to find out.




In a Big Test covering this segment, the Renegade finished third.




Long-term test | UPDATE







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The Durango poses at the end of a good day chasing a Porsche Targa 4S up one of California's best roads.



I have been in the Durango for a while now, and I still never remember where this button is.

2017 Dodge Durango GT William Walker



"The Durango's ample cargo room comes in handy on shoot days. It's much better than cramming myself into a sedan's trunk."

Service life / 2 mo/4,750 mi
Avg CO2 / 1.02 lb/mi
Energy cons / 177 kW-hrs/100 mi
Unresolved problems / None
Maintenance cost / \$0
Normal-wear cost / \$0
Base price / \$38,590
As tested / \$42,775

 **REAL MPG FUEL ECON** 21.6 MPG comb.

There's the instrumented testing our team measures, and then there is my test. My test deals less with horsepower, acceleration, and braking and completely with how good of a photo support vehicle a car is. The Durango scores well in my test.

At the high end of the photo-vehicle spectrum are minivans. Their low, cushy ride, ample storage, and deep rear storage tubs (my seat) make them the camera vehicle of choice for automotive photographers. The low end is filled with sedans and trucks. I'm not saying I haven't crammed myself

into the trunk of a car or two in my day, but it's not ideal. The Durango falls closer to the minivan side of the scale. With the second- and third-row seating stowed, the Durango has 84.5 cubic feet of cargo space. That's 2.4 cubic feet more than our long-term 2016 Honda Pilot and 22.3 more than the 2016 Land Rover Range Rover Sport. And when I pack my gear for a photo shoot, every bit of room is appreciated.

It's not all about space, though. In order to be the ideal photo vehicle, the ride needs to be sporty enough to maintain speed in the turns as well as soft enough not to jostle me too much while I'm trying to photograph the car behind. The Durango manages to accomplish this balance well.

If actual test data is your thing, you're in luck. We finally ran the Durango through our standard testing. At 4,942 pounds, the Durango is a whopping 662 pounds heavier than the Pilot. I'm guessing that extra heft is a large contributor to why the similarities end where performance data begins. Even with 15 more horsepower than the Honda, the Durango can only manage a 0-60 time of 7.6 seconds, a full 1.4 seconds behind the Pilot. That discrepancy carries through the quarter-mile mark, as well, and the Durango stopped from 60 mph in 130 feet to the Pilot's 119. In fact, there isn't a single performance test where the Durango bested the Pilot.

Setting the empirical data aside, the Durango did surpass the Pilot in one test. My test. And I am the one who has to live with it.



2016 Nissan Titan XD Pro-4X Scott Evans



"When I needed to haul rented equipment, I opted for our long-term Pilot, HR-V, and Colorado. The Titan XD's high tailgate made ramps too steep."

Service life / 8 mo/15,035 mi
Avg CO2 / 1.50 lb/mi
Energy cons / 251 kW-hrs/100 mi
Unresolved problems / Bluetooth connection, front suspension squeak, steering moan
Maintenance cost / \$315.76 (4-DEF refill; 1-oil change, inspection, tire rotation)
Normal-wear cost / \$0
Base price / \$52,165 **As tested** / \$59,060

 **REAL MPG FUEL ECON** 16.3 MPG comb.

When the Nissan Titan XD first showed up at the office for its long-term test, I jumped at the chance to be its steward (it has since been passed on to Jason Udy while I pilot the Chevrolet Bolt EV). My wife and I were moving forward with plans to landscape our yard and would need regular use of a truck. The near-heavy-duty Titan XD seemed like the perfect choice. Unfortunately, it's been less useful than I'd hoped.

To understand why, we need a refresher on curb weight and Gross Vehicle Weight Rating

(GVWR). The curb weight is what the truck weighs empty. GVWR is the maximum the truck can weigh when loaded. The difference is payload, which includes both people and stuff. These numbers are important when towing or hauling—over-grossing the truck is both dangerous and illegal.

In the case of our Titan, the GVWR is 8,990 pounds, and the curb weight, per our scales, is 7,340 pounds. That leaves a payload of 1,650

You can haul a lot of stuff in the Nissan Titan XD if it's not too heavy. The truck's real calling card is towing.

pounds, and that's a problem. This all came into stark focus when it came time to procure landscaping supplies. For a typical run to a big box store, the Titan XD was overkill. When it came time to rent equipment such as a brush mower, the high tailgate, which sits 37 inches off the ground, made ramps too steep. I thought the Titan could handle the paving stones. I needed one pallet, which weighs about 3,000 pounds. That's when I discovered the low payload limit. The solution? I rented a flatbed F-250 and got it home in one trip.

At the end of the project, I found a job the Titan XD could handle. I needed four yards of mulch; a yard weighs about 800 pounds, and a 6-foot bed can handle two yards. As with most trucks, the weight in the bed improves the ride noticeably. What's more, the extra weight smoothed out the throttle tip-in and the shifts, both of which are rather jerky when empty. It might not haul like a domestic heavy-duty, but what it can haul, it hauls well.



2016 Chevrolet Camaro SS Chris Walton



"Only six days left with our 2016 COTY winner. We've logged 16,547 miles and earned 16-mpg average. And you thought we'd be frugal? Ha!"

Service life / 11 mo/16,298 mi **Avg C02** / 1.20 lb/mi
Energy cons / 211 kW-hrs/100 mi
Unresolved problems / None **Maintenance cost** / \$119.31 (2-oil change, inspection) **Normal-wear cost** / \$992 (1 set Goodyear Eagle F1 Asymmetric 3 RunOnFlat tires, mount and balance)
Base price / \$42,295 **As tested** / \$46,080

FUEL ECON 20.4 MPG comb.

I've heard from a number of readers over the past 12 months. Hi, and thanks! There seems to be a friendly community with its arms around the Camaro. You don't see that with, I dunno, Zach Gale's Kia Sportage. One reader asked me to speak to the Camaro's ergonomics, ingress/egress, and visibility. I touched on these before, but even after living with this car for nearly a year—commuting, traveling, carpooling, grocery shopping—there are things I have yet to get used to.

The outward visibility is dreadful. It's easy to understand why. Just look at the high beltline and the windowless sail panel. Even our 2016 Best Driver's Car, the McLaren 570S, was easier to see out of. In terms of ergonomics, there are hardscape complaints but not a single user-interface software issue to report. There is practically no interior storage besides the glove box and small cubby inside the center arm rest. Oh, and don't try to insert a USB cord in the slot within that cubby while driving. It's an arm-wrenching dexterity game. My coffee and phone go in the cupholders, so I place my key card and garage remote on the not-flat base of the center console. One 0.5 g corner and they land in a footwell.

Finally, with two-door coupes in general, ingress/egress is a challenge. With the Camaro's long doors, shimmying in and out while in narrow parking stalls has grown old. I find myself scanning for an end spot so I can swing the door wide open. Nimble and lanky seventh- and eighth-graders are about the only people who don't mind stepping over/ducking under the front seat belt to fall into the back seat. But when I showed up for carpool with a sedan, even they said, "Why don't all cars have four doors like this? It's so much better than that red car you drive."

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PHILIPS

Our AWD Subaru wagon proved a dependable companion on the rough streets of Los Angeles.



2016 Subaru Outback 2.5i Limited Chris Clonts



"Would we fork over the \$2,800 and change premium, plus the slight increased fuel costs, for a comparably equipped flat-six? Yeah."

In our 2015 SUV of the Year competition, we said, "The Outback remains the easy-to-recommend, highly capable vehicle that won in 2010." Not to spoil the surprise, but that's what we found in our year with a 2016 Subaru Outback 2.5i Limited. This verdict will be a revelation only to folks who despise practical, family-friendly SUVs in favor of those vehicles with extreme off-road capability.

Our AWD wagon, equipped with Subaru's latest tech, proved a dependable companion on the rough streets of Los Angeles, in the mountains and desert, and on at least one long trip to Portland.

At a base price of \$31,545, our top-of-the-line Limited came with a leather-trimmed interior, dual-zone AC, heated front/rear seats, keyless entry, and a sometimes-cantankerous power hatch. For \$3,090, we added a power moonroof,

Service life / 15 mo / 26,365 mi

Base price / \$31,545

Options / Option package 23 (\$3,090: moonroof, auto-dimming rear view mirror, navigation system, EyeSight driver-assist system, keyless entry and starting); rear bumper cover (\$105); rear seat back protector (\$90); all weather floor mats (\$81); rear cargo net (\$78)

Price as tested / \$34,989

Avg fuel econ/C02 / 23.4 mpg / 0.83 lb/mi

Problem areas / None **Maintenance cost** / \$0 (3- oil change, inspection; 1-tire rotation)

Normal-wear cost / \$0 **3-year residual value*** / \$27,300 / \$29,800 **Recalls** / None

REAL MPG CITY/HWY/COMB FUEL ECON
24.1/31.0/26.8 MPG

*IntelliChoice trade-in/retail (at 42,000 miles)

navigation, and the EyeSight driver-assist system, which we came to love despite a few shortcomings. All-weather floor mats (\$81), a rear bumper cover (\$105), a cargo net (\$78), and a rear seatback protector (\$90) brought the bottom line to \$34,989.

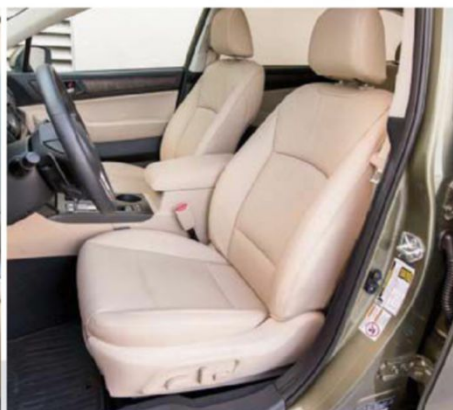
If you are upgrading from a compact car, the size of the Outback will be easy to get used to. Sure, seat-height fetishists would be happier with a Mazda CX-5, Honda CR-V, or Toyota RAV4, but the Outback is still slightly higher than most sedans.

Handling is completely predictable. The Subaru tracks well, and the steering weight feels good (but could be a tad heavier). If you charge too quickly around a corner, it will quickly understeer. Just remember, this is a family wagon, not a WRX.

The only part of the driving experience people consistently notice is the overly aggressive throttle tip-in—which is perhaps programmed to give the illusion of prompt acceleration. It's a jerky experience in an otherwise smooth rider. But the Outback is by no means quick: It hits 60 mph in 9.5 seconds. That's an eternity on an on-ramp.

Some crossovers, particularly smaller ones that don't directly compete against the Outback (let's face it, few things compete directly with the Subie), are too much like cars, with carlike ground clearance. One of my favorite features of the Subaru was its whopping 8.7 inches of clearance. It feared no oversized parking curbstone, ditch-like intersection rain gutter (which can tear the lower valance off of cars in L.A.), or moderate pothole.

The all-wheel-drive system—what most consumers would say differentiates the Outback—acquitted itself well in L.A.'s surprisingly wet rainy season, during some light use on snowy mountains, and in the desert. No, we wouldn't take



It's easy to dial in a good driving position. Really, the only thing that could improve these seats is if they were ventilated. C'mon, Subaru. If Hyundai can do it ...

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2016 Subaru Outback 2.5i Limited	
POWERTRAIN/CHASSIS	
DRIVETRAIN LAYOUT	Front-engine, AWD
ENGINE TYPE	Flat-4, alum block/heads
VALVETRAIN	DOHC, 4 valves/cyl
DISPLACEMENT	152.5 cu in/2,498 cc
COMPRESSION RATIO	10.3:1
POWER (SAE NET)	175 hp @ 5,800 rpm
TORQUE (SAE NET)	174 lb-ft @ 4,000 rpm
REDLINE	6,000 rpm
WEIGHT TO POWER	21.2 lb/hp
TRANSMISSION	Cont. variable auto
AXLE/FINAL-DRIVE RATIO	4.11:1/2.34:1
SUSPENSION, FRONT; REAR	Struts, coil springs, anti-roll bar; multilink, coil springs, anti-roll bar
STEERING RATIO	14.0:1
URNS LOCK-TO-LOCK	2.8
BRAKES, F; R	12.4-in vented disc; 11.8-in vented disc, ABS
WHEELS	70 x 18 in, cast aluminum
TIRES	225/60R18 100H M+S Bridge-stone Dueler H/P Sport AS
DIMENSIONS	
WHEELBASE	108.1 in
TRACK, F/R	61.8/62.2 in
LENGTH X WIDTH X HEIGHT	189.6 x 72.4 x 66.1 in
GROUND CLEARANCE	8.7 in
APPRCH/DEPART ANGLE	18.4/22.7 deg
TURNING CIRCLE	36.1 ft
CURB WEIGHT	3,702 lb
WEIGHT DIST, F/R	56/44 %
TOWING CAPACITY	2,700 lb
SEATING CAPACITY	5
HEADROOM, F/R	38.3/38.9 in
LEGROOM, F/R	42.9/38.1 in
SHOULDER ROOM, F/R	58.1/57.3 in
CARGO VOLUME BEH, F/R	73.3/35.5 cu ft
MAX CARGO FLOOR LENGTH	77.7 in
CARGO LIFT-OVER HEIGHT	27.9 in
TEST DATA	
ACCELERATION TO MPH	
0-30	3.7 sec
0-40	5.3
0-50	7.2
0-60	9.5
0-70	12.5
0-80	16.5
PASSING, 45-65 MPH	4.7
QUARTER MILE	17.4 sec @ 82.1 mph
BRAKING, 60-0 MPH	126 ft
LATERAL ACCELERATION	0.80 g (avg)
MT FIGURE EIGHT	28.4 sec @ 0.57 g (avg)
TOP-GEAR REVS @ 60 MPH	1,700 rpm
TOP-GEAR REVS @ 60 MPH	1,750 rpm
MT FIGURE EIGHT	23.5 sec @ 0.91 g (avg)
TOP-GEAR REVS @ 60 MPH	1,250 rpm
CONSUMER INFO	
BASE PRICE	\$31,545
PRICE AS TESTED	\$34,989
STABILITY/TRACTION CONTROL	Yes/Yes
AIRBAGS	Dual front, front side, f/r curtain
BASIC WARRANTY	3 yrs/36,000 miles
POWERTRAIN WARRANTY	5 yrs/60,000 miles
ROADSIDE ASSISTANCE	3 yrs/36,000 miles
FUEL CAPACITY	18.5 gal
EPA CITY/HWY/COMB ECON	25/33/28 mpg
ENERGY CONS, CITY/HWY	135/102 kW-hrs/100 miles
CO2 EMISSIONS, COMB	0.69 lb/mile
RECOMMENDED FUEL	Unleaded regular



the Subaru to Moab, but it never got stuck in some truly questionable traction situations, even off the beaten path in the desert sand near Palm Springs.

Subaru's EyeSight system, which uses cameras mounted in front of the rearview mirror as the primary detection mechanism, is among the best in the business. Its smart cruise control, which controls your distance to cars ahead smoothly and predictably, even slows to a stop then reaccelerates when traffic gets moving again. We had only a few problems with the system being slow to react in response to a change into a faster lane of traffic. In fact, the only time EyeSight had a big-time issue was during two of our rare SoCal downpours, when the system shut down temporarily. When the rain let up slightly, it came back within five seconds.

The Outback Limited was a great place to spend time during my commute, two-thirds of which is spent in slow L.A. traffic. It's easy to find a good driving position with the power seat and the adjustable steering wheel. You're not sitting as tall as a CR-V driver, but you have a more commanding view than standard sedans. And although the Forester is the king of the Subarus for outward visibility, the Outback doesn't have any problems there.

Maintenance was not an issue for us—our Subaru came with a prepaid maintenance plan. According to our partners at Intellichoice, the five-year operating cost for the Outback (\$28,499) was better than average against the vehicles people generally cross-shop. It's less than a CR-V EX AWD (\$29,015), Santa Fe Sport AWD (\$32,026), and Escape SE AWD (\$32,908). The Outback also has excellent five-year depreciation of 37.1 percent from sticker price. The Santa Fe Sport and CR-V were at 39.2 percent, and the Escape jumped to 42.2 percent. Fuel economy was also impressive for an AWD vehicle of this size.

Speaking of maintenance, the only problem is a good one (for Subaru). With its ever-increasing sales, the service departments at existing dealerships face enormous traffic. An appointment frequently needs to be made a week or more in advance (at wider dealer networks such as Honda, you can usually get an appointment in a couple days), and most of the waiting areas were designed for fewer customers. But Subaru is addressing that shortcoming and in April announced an addition to its dealer expansion program that incentivizes



dealers to expand their service facilities.

The auto-opening hatch frustrated multiple drivers; it would sometimes get stuck, confused, or otherwise not do what you wanted and required Schwarzeneggerian force to manipulate when it stopped obeying electronic orders. The functional but slightly slow infotainment system is being updated with screens that interface with Apple CarPlay and Android Auto in the new model year. A few drivers complained of small volume and tuning knobs.

In a few years, we'll see a new Outback based on the Subaru Global Platform, which will underpin all its vehicles. It resulted in fabulous improvements in driving dynamics for the Impreza, which typically has lagged behind other Subarus. If it made the Impreza better, we can't wait to see what it does for the Outback, which is already a vehicle most crossover hunters should absolutely consider. ■



See all that daylight under there? That's 8.7 inches of things that won't happen to the underside of the Subaru Outback.



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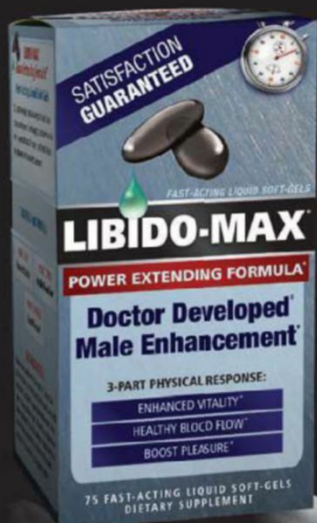
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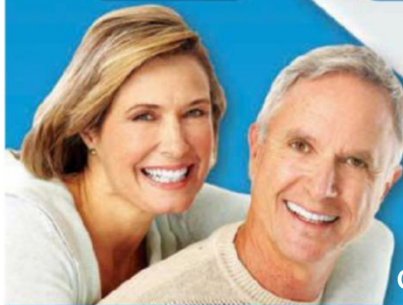
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The Big Picture



BIRTH OF A NOTION HOW THE FORD GT CAME TO BE



The new Ford GT was meant to be, but never meant to happen.

The original plan, codenamed Project Silver, was to race a

Mustang at Le Mans in 2016 and celebrate the 50th anniversary of Ford's thrashing of Ferrari with a win over Maranello's latest in the GTE class. However, when the team headed by Ford product development chief Raj Nair figured out how extensively the Mustang would need to be modified to make it competitive with a GTE-spec Ferrari 458, the project was killed.

But beating Ferrari once more at Le Mans was an itch Nair and his small group of enthusiasts—which included Ford Americas design director Chris Svensson and the newly minted head of Ford Performance and former Mustang chief engineer Dave Pericak—just had to scratch. So Nair authorized a skunkworks program, off the radar and out of sight to all but a mere handful of staffers in design and engineering. They worked out of a padlocked basement in Ford's Product Development Center, with meetings held after hours and on weekends, and they focused on creating a car that could win at Le Mans.

Everyone involved understood they were talking about creating nothing less than a true successor to the GT40 that humiliated Enzo's blood-red racers half a century ago.

According to Ford PR flacks, building the

GT around the 3.5-liter twin-turbo EcoBoost V-6 engine helped make the car smaller, lighter, and more aerodynamic. But Nair is as savvy a politician as he is an engineer; he knew using an engine promoting the EcoBoost brand would help sell the idea of a new Ford GT to Bill Ford, Alan Mulally, and Mark Fields.

Although the GT program was strictly black ops, its engine was developed in plain sight, in the back of the Riley-Ford Daytona prototype raced by Chip Ganassi's team in the United SportsCar Championship. "At the time Mr. Ganassi didn't actually know what we were asking him to do, other than race the engine in the prototype series," Pericak says. "What we were doing was proving out our technology."

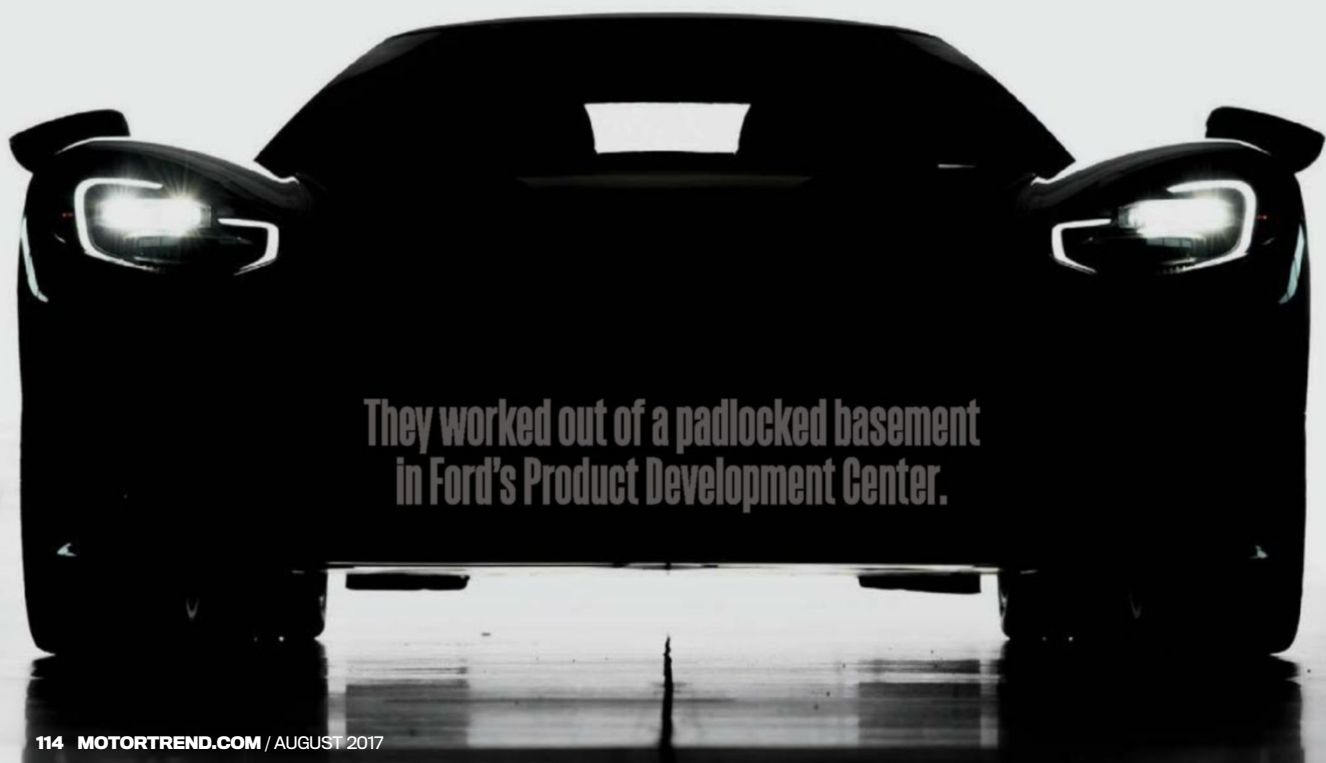
Meanwhile, Svensson and a small team of 12 designers and modelers were shaping a radical take on the mid-engine supercar. Once the clay models were done, Nair had what Pericak describes as a slightly uncomfortable conversation with Ford, Mulally and Fields. "You're not supposed to be using company resources for something that's not approved," they told him. Then he brought them down to the basement to see what his team had been doing in their spare time. "They saw one of the most beautiful cars they'd ever seen," Pericak says. "The sell after that wasn't too hard."

With Ford's top brass on board, the new

GT—now codenamed Project Phoenix—was a go, though its existence remained a tightly guarded secret. And with Le Mans 2016 less than two years away, the pressure on the development team was intense. "We simultaneously designed the road car and the race car, and we engineered both at the same time," Svensson says. "There was a constant back and forth between engineering and design, which was unlike anything I've ever done on any car program."

Race car rules drove the design and engineering of the GT, Svensson says: "We made sure that whatever we did on the race car we did on the road car." Pericak says that as a result the GT is the only car that competes in the GTE class without special waivers allowing extra modifications to make it suitable for track work.

History will recall the Ford GT duly won its class at Le Mans, beating Ferrari. Pericak frankly admits neither the win nor the fact that he's selling 250 GT road cars a year at an eye-watering \$450,000-plus is going to boost Ford's bottom line, and he's right. But in terms of rekindling a reputation forged 50 years ago—a reputation for passion, competitiveness, and world-beating performance—the mere fact the new Ford GT exists is worth its weight in gold. ■



They worked out of a padlocked basement
in Ford's Product Development Center.

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